



## **Religion and Place Attachment: A Study of Sacred Places**

Jessica Mullendore

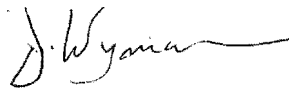
**Religion and Place Attachment: A Study of Sacred Places**

An Honors Thesis (HONRS 499)

by

Jessica Mullendore

Jack Wyman

A handwritten signature in black ink, appearing to read 'J. Wyman', with a long horizontal flourish extending to the right.

Ball State University  
Muncie, Indiana

May 2008

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### Abstract

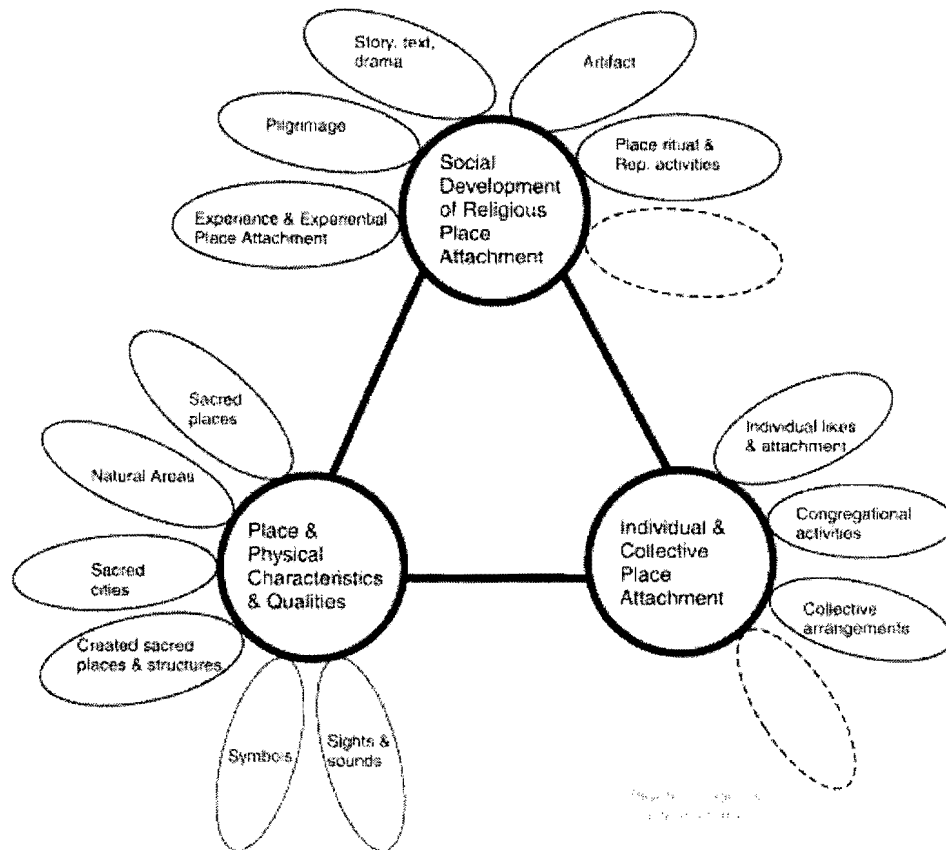
The article *Religion and place attachment: A study of sacred places*, claims that place attachment is an important part of religion. The scope of the article is focused on mainly three religions; while the religions mentioned are discussed exhaustively, there is a question whether the general principles can be applied to other religions. Through a questionnaire, I found out the collective ideas of place attachment are applicable to the Unitarian Universalist Church in Muncie, Indiana. Through interviews, I found out what spaces the church currently occupies that need improvements. This broad and narrow field of view provide a more comprehensive picture in terms of this specific church.

### Outline

- I. Literature Review
- II. Significance of the design problem / question / hypothesis
- III. Research Methods and Data
- IV. Data Analysis
- V. Conclusions
- VI. References
- VII. Figures/Appendix

## I. Literature Review

- A. Main claim: PLACE CAN BE AN INTEGRAL PART OF RELIGION AND RELIGION CAN IN TURN PLAY AN IMPORTANT ROLE IN THE DEVELOPMENT OF PLACE ATTACHEMENT
- B. The article analyzes a variety of religions (Hinduism, Judaism, Islam), work on religion from scholars, and religious places with the assumption that religion and the sacred are still part of modern society. Three areas of focus in article: socialization, individual, and physical place attachment.



**1. PHYSICAL PLACE ATTACHMENT:** The authors begin by making vague references to the idea of the sacred, the center of the world (mundi), the kiva, etc. They move forward giving regional examples, Indian temples located in the geographic center of town, the European cathedral spire dominating the skyline, and the modern grid as an ideal cosmic plan. They claim that we try not only to reproduce the work of the gods in cities but in land use too. The layout, structure, and green space can affect the quality of air, light, sights, and sounds. There are many characteristics of place which a believer can connect to. These variety of physical elements expressed in structure create the house of god to experience heaven on earth. The concept of a pilgrimage is said to be one of the most intense learning experiences; it combines all the physical elements of place attachment with all the senses. A pilgrimage connects to a past sacred place and artifacts, which can be important teaching devices as they are visual reminders and a tangible connection to place. Therefore, religious possessions are fiercely protected against attempts to alter, transform, dismantle. When such does occur, place stories keep memories alive even when places have been distorted, defaced, or destroyed. Religion invests place with symbolic meaning and engages believer to experience history and geography.

**2. INDIVIDUAL PLACE ATTACHMENT:** Personal experience can be just as important as physical place attachment. Places can foster inner tranquility or be an oasis for the individual. This is accomplished through careful selection of location and natural features. Through time and



generations the sacred provides people with something to identify to. This continuous symbolic lifeline connects to the individual on a personal level exemplifying a degree of permanence to outlast change.

### 3. SOCIALIZATION PLACE ATTACHMENT:

Socialization is how religious place attachment is taught and learned. Collective attachment can be fostered through congregational focus and mandated collective prayers. Places of assembly often foster communal bonds. Parents, educators, peers, and the congregation are important in forming identity, teaching of prayers and rituals, stories and symbols. Stories, hymns, and myths are important in socialization; singing or storytelling can explain and clarify religious aspects.

- C. **ARTICLE ISSUES:** Very few religions are discussed (only uses religions that support claim), No discussion on how certain religions were more valued for information than others, The experience of place is different for every follower, Self proclaimed lack of focus on non-place significant religions (Protestant), Very general and vague concepts and ideas; not directly applicable to design

RELIGION	Hinduism	Judaism	Islam	Buddhism	Catholicism	Sikhism
SACRED PLACES						
Sacred cities	Banaras Mathura	Jerusalem	Mecca Medina	Budh Gaya, Sarnath	Rome Jerusalem	Amritsar
Sacred structures	roadside shrines temples	Wailing Wall, synagogues	mosques roadside shrines	temples, stupas, monasteries	cathedrals, churches, monasteries, shrines	Golden Temple, gurudwaras
Sacred burial sites	no burial sites	tombs of religious personages	tombs of religious personages			
Sacred places in nature	all of nature (esp. mountains, rivers, lakes)	specific places made significant due to special events	specific places made significant by special events	mountains, rivers, lily ponds	sites of healing waters/miracles/ visions of Virgin Mary (e.g. Lourdes)	

- D. **CONCLUSIONS AND FOCUS:** While place attachment is individual, social, and physical it varies per religion and person. The three areas of focus all are interrelated and help create a deeper understanding of the significance of place. As a designer, the selection of place, the allowable space for rituals, the veneration of artifacts, and the overall sensual experience all need to be considered when designing a religious or sacred space. I choose to focus on the connection with place and nature in the Unitarian Universalist Church. Using the article, I derived questions to better understand the significance of place for this specific congregation.

## II. Significance of the design problem / question / hypothesis

- A. Questionnaire: The problem presented in the article deals with the idea that religion plays a major role in an individual's attachment to a place. This creates the question of how architects can further develop this attachment through the

design of religious buildings using the religious elements discussed in the article. I focused the questionnaire on how the design of the building, through materiality and connection nature, could further emphasize the attachment to the space.

- B. Interviews: The current problem at the Unitarian Universalist Church of Muncie involves the use of certain spaces like the Library, Fellowship Hall, Kitchen, and other community spaces and how they relate to each other. The interview process was used in an attempt to find out what was exactly wrong with these spaces and in what way the person being interviewed felt these spaces could be fixed. This process led to a greater understanding of what could be done in the design of a new U.U. church.

### III. Research Methods and Data

- a. The article is an observation (research/information) method. It looks at established religions and extracts data to support the hypothesis. It also adds in previous research from other scholars on religious places.
- b. Questionnaire:
- c. Likert Scale:
- |                |       |             |          |                   |
|----------------|-------|-------------|----------|-------------------|
| Strongly Agree | Agree | Indifferent | Disagree | Strongly Disagree |
|----------------|-------|-------------|----------|-------------------|
- d. Interviews: I decided to focus the interviews not on general religion but on the Unitarian Universalist church in Muncie. My focus was on spatial arrangements and relationships between spaces; I chose this method to learn the strengths and weaknesses of the existing building and gain information on what could be done to improve the design of a new facility. The spaces I identified as problematic for the congregation were used to create questions illustrating what might improve the church. These spaces included the Library, Fellowship Hall, Kitchen, and other community spaces. To receive useful results, I interviewed four members of the congregation in a variety of positions and ages: Pastor Perchlick (male, 50's, management) Nadine Tringali (female, 40's, administration), Jack Wyman (male, 60's, senior member), Emily Perchlick (female, 20's, youth member). This insured a range of demographics that represented the church well while providing a possible range of answers.

### IV. Data Analysis

- a. Questionnaire: The questionnaire included 7 multiple choice questions and two open ended questions. The multiple choice questions dealt with the design problem presented in the article while the open ended questions tried to see if the argument reached past religious structures and what other factors besides religion help create and attachment to a certain space. The data showed that the majority of people agreed that religion plays a role in the attachment of a space and that the design of the space can dramatically change a person's level of attachment. Directly relating to the U.U. Church this means that the use of natural materials and a physical and visual connection to nature can increase the attachment to a space. The open ended questions showed that personal opinions and beliefs play a major roll in place attachment.
- b. Interview Questions: While some of the participants were more detailed in their responsiveness, even with the wide demographics, the findings were almost unanimous. Everyone agreed the library is inadequate and the way to improve it was to create a larger, separate space. The kitchen/fellowship hall area is arranged and used functionally, but could be larger to serve the growing congregation. The question on how to improve the dining area varied most greatly; there were differences between multiple spaces or a larger single area. Everyone agreed that the church needs more office and conference space, but there was a variety of ideas about what kind and how much space.
- c. Coding: To process the information I received from conducting interviews, I coded the answers according to information from *Inquiry by Design*. The interviews were very general in spatial improvements; the words better, bigger,

and more were used the most often. The only interviewee who commented on not only the size of space but also on the spatial quality was Reverend Perchlick. He gave suggestions on quality of light and feelings of warmth. He took that vantage point of not only a member of the congregation, but a user of many of the service spaces; the ability as a cook and server in the kitchen is much different than a diner. He also started to touch on the ideas of visual and social connection to and within a place; with more time and questions, this topic could have been explored further in depth while it relates most to the research article I studied.

## **V. Conclusions**

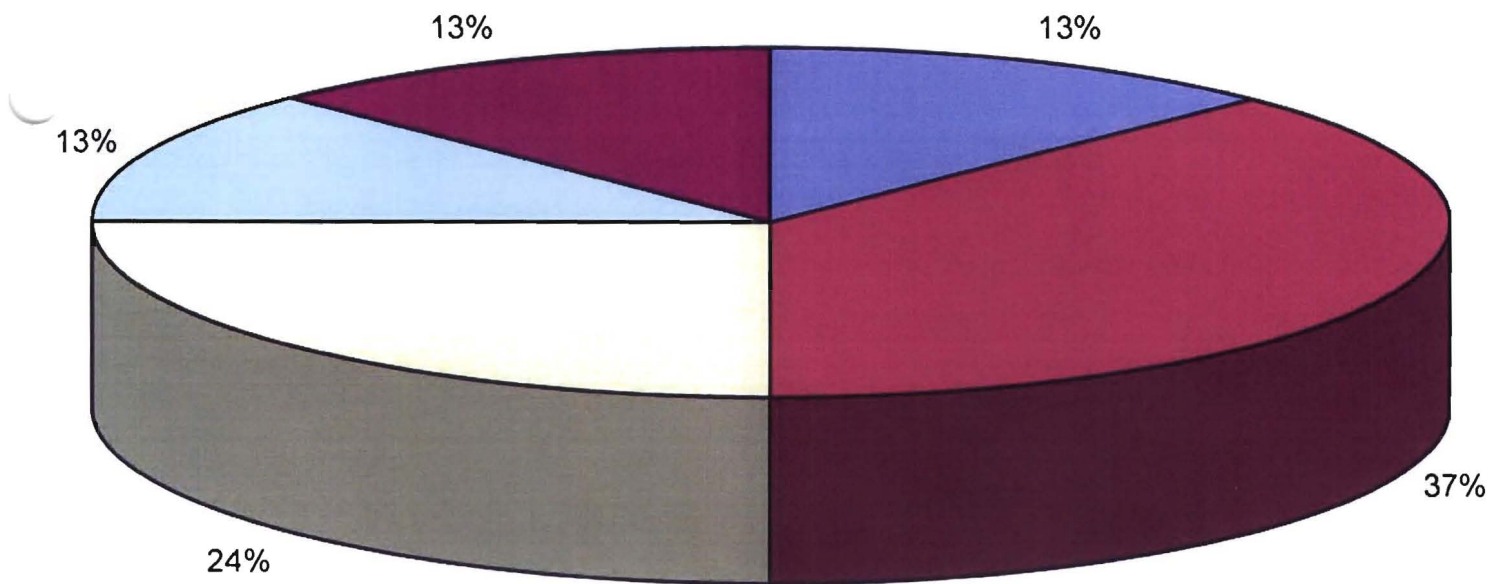
- a. The U.U. church is an exception to many of the ideas presented in the article; mainly because it is not one of the religions examined. While some of the ideas apply, many just do not relate. While the church studies many religions, the place attachment of this congregation is based on community (socialization) and nature (a physical attribute). As the article states: "Places can foster inner tranquility or an oasis for the individual. This is accomplished through careful selection of location and natural features." (Mazumdara, 9) The church's location in the secluded woods is key to the spiritual beliefs of the congregation. Another point exemplified in the article that does directly relate to the U.U. Church is the desire to preserve artifacts that have a connection with the past. The church has one of two large bells that were salvaged and purchased from the previous structure in downtown Muncie. After reviewing the results of the questionnaires we found out that, in our study group, religion does play a roll in an individuals attachment to a place, however the majority of one's attachment is gained through personal belief and experiences within that space.
- b. While the questionnaire was based on the article and religious place attachment in general, the interviews were conducted to receive feedback about what could actually be done to improve the current space in the best interest of the church. The areas I, as a designer, identified as problem areas were focused on in the interviews to receive detailed responses on how to change the space in the mind of an actual congregation member. With the demographics varied greatly, the answers only varied slightly. Overall, we were correct in our assumptions on spaces in the church that needed improvement and received valuable insight from the first hand users on improvements.
- c. **Studio Design:** Through the information I obtained in my interviews and questionnaires, I improved the main spaces with issues in my studio assignment. With such unanimous evidence that specific spaces in the church need improvement in size, shape, and quality, this information helped me with spatial layout; but more time and deeper information could have led to further insights in improvements in quality of place.

## **VI. References**

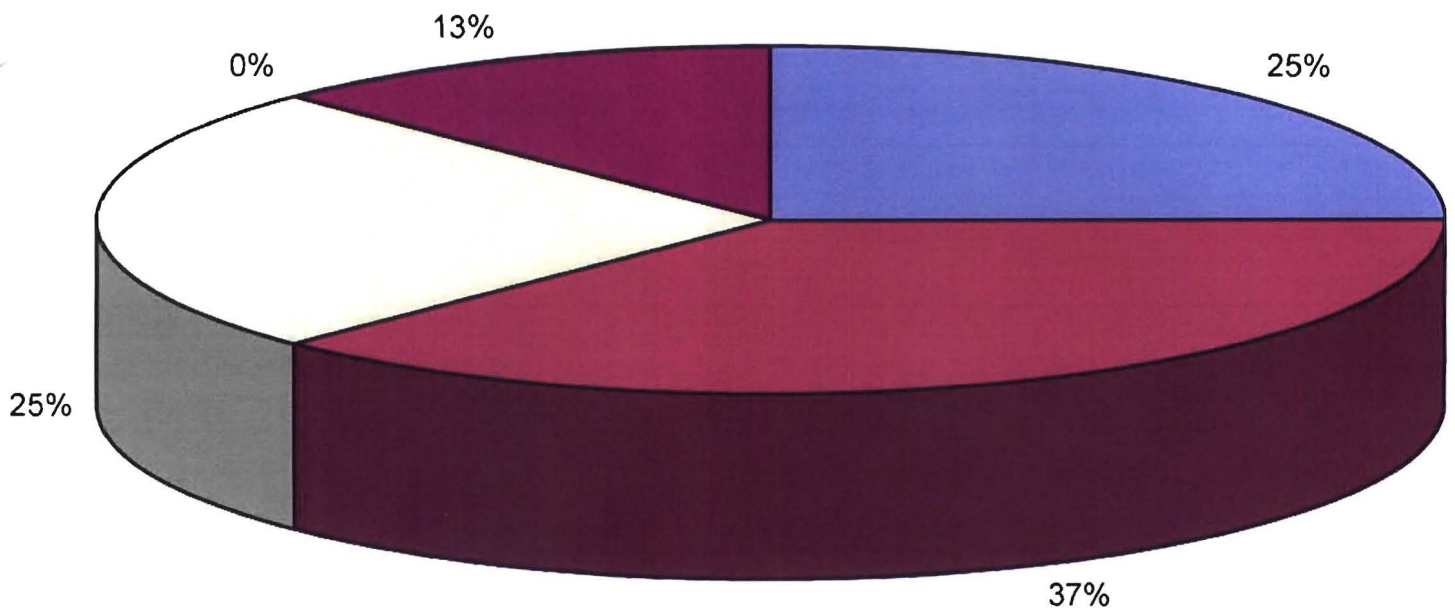
- a. Mazumdara, Shampa and Sanjoy Mazumdara. *Religion and Place Attachment: A Study of Sacred Places*. Journal of Environmental Psychology. Volume 24, Issue 3, September 2004, Pages 385-397.
- b. John Zeisel. *Inquiry by Design*. W. W. Norton and Company, Inc, 1981. 227-256.

## **VII. Figures/Appendix**

- a. Attached

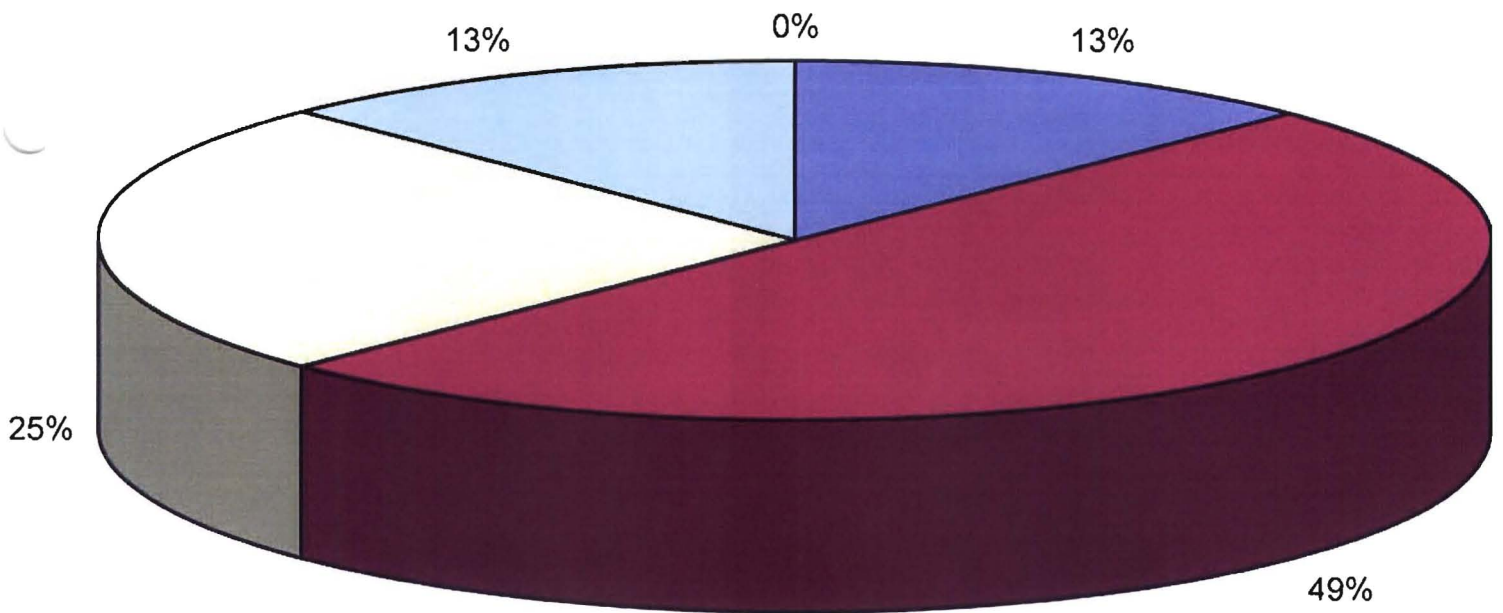


Q1: Religion and your own religious beliefs play a large role in your attachment to certain spaces.

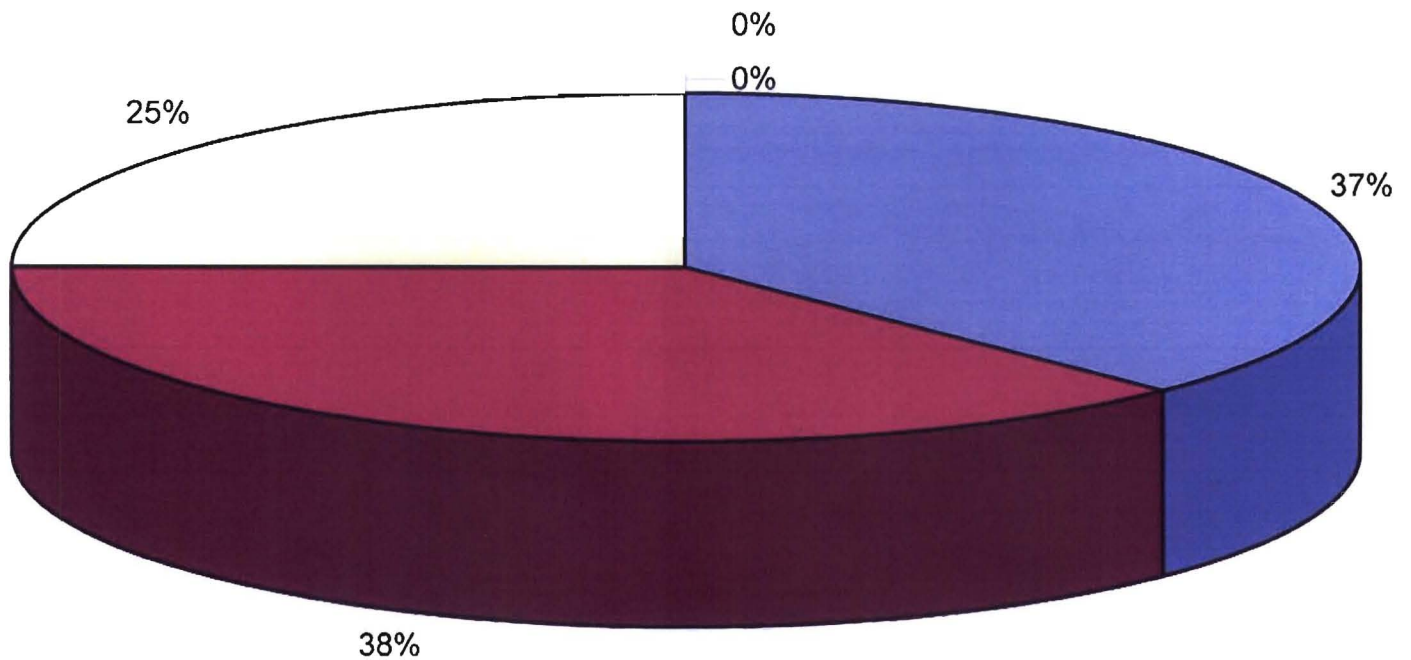


Q2: The overall architectural Design of the Unitarian Universalist Church could greatly affect your attachment to the church.  
(Form, Materials, Function)

- Strongly Agree
- Agree
- Indifferent
- Disagree
- Strongly Disagree



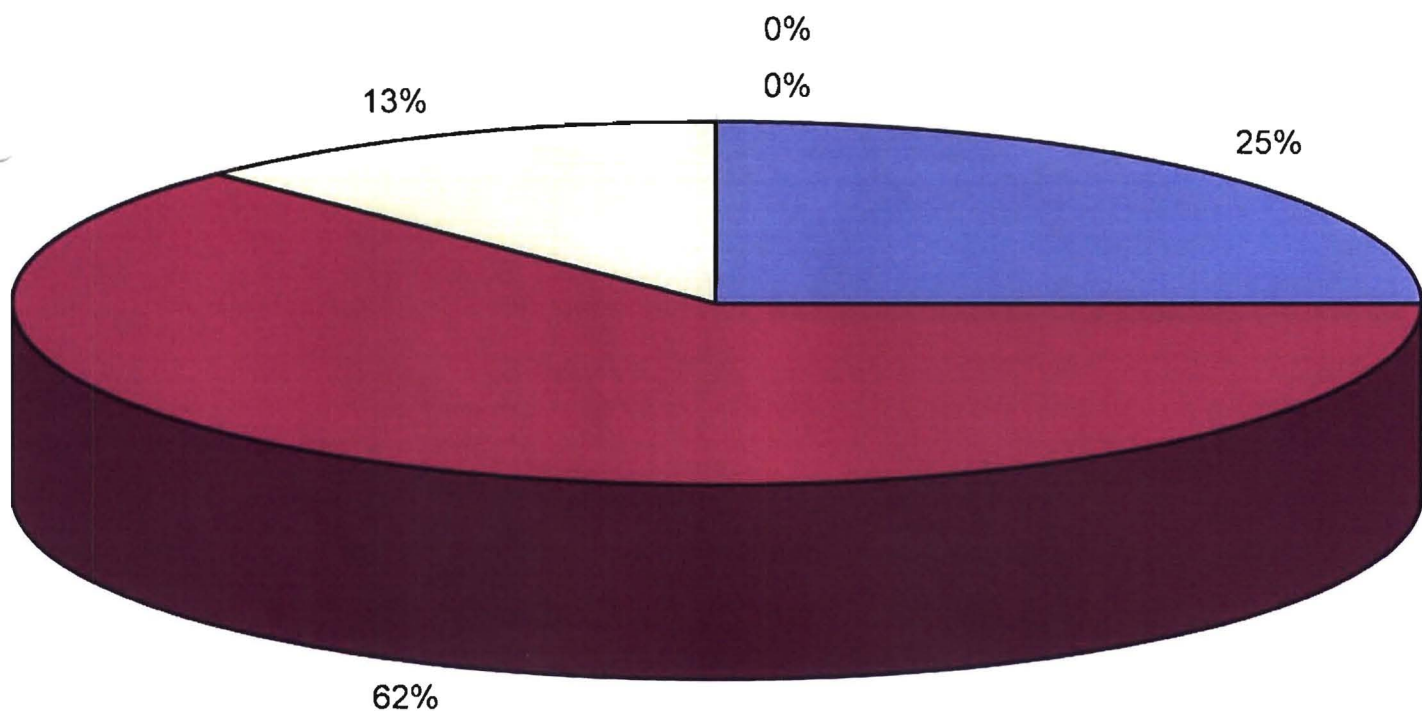
Q3: Since the U.U. faith focuses on nature and the outdoors, bringing in natrua materials and forms would help create a more sacred space and atmosphere.



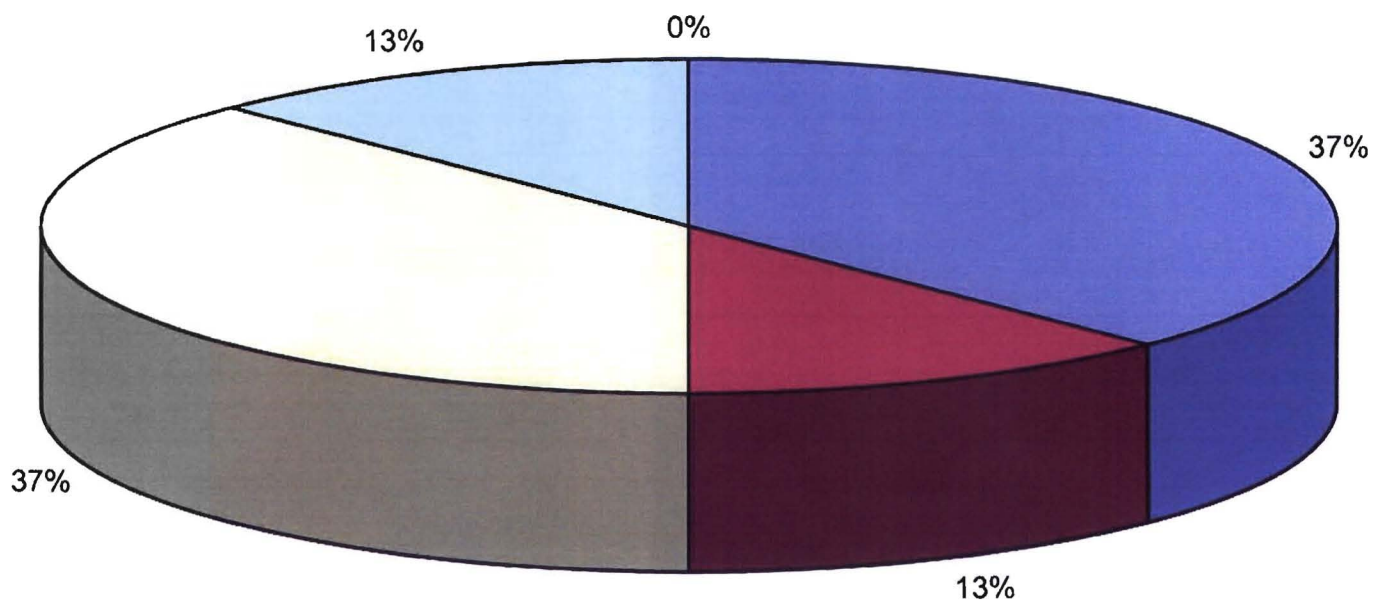
Q4: A U.U. Church built with natrua materials (Wood, Stone) would evoke a greater attachment to the church then one built with processed materials. (Steel, Glass)

- Strongly Agree
- Agree
- Indifferent
- Disagree
- Strongly Disagree



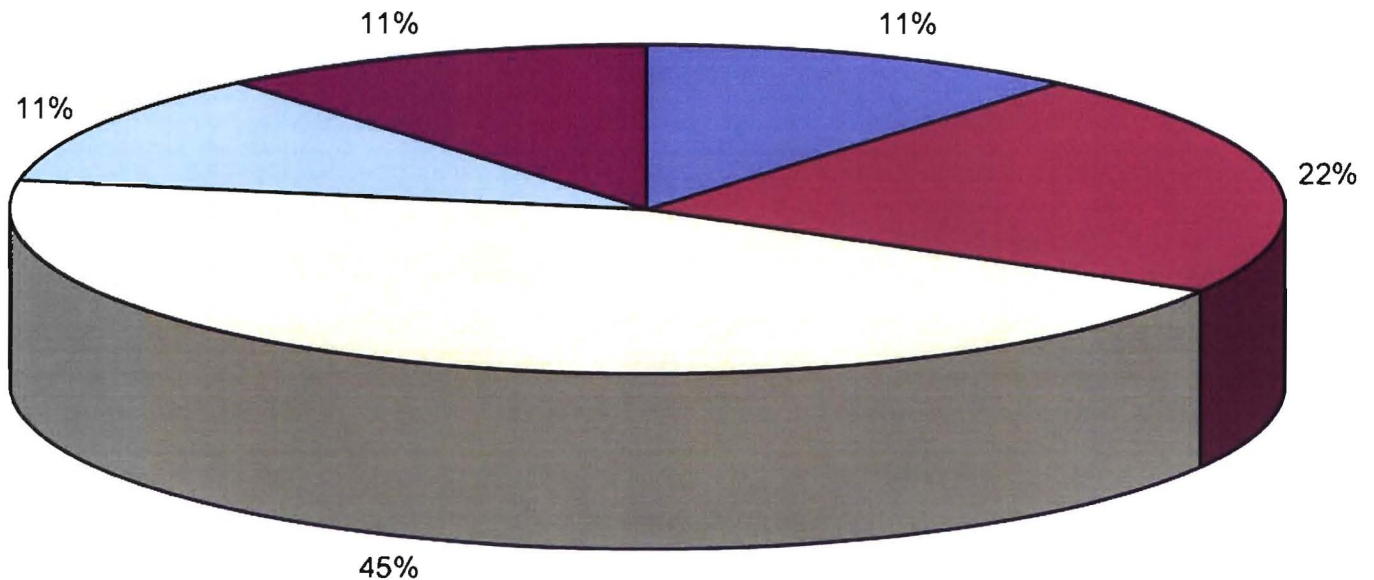


Q5: Large amounts of glazing and views out to the outdoors would create a more sacred space and atmosphere for the U.U. church.



Q6: Since the U.U. faith is such a blend of religious ideas and beliefs, socialization and the mixture of these beliefs are an important part of the religion.

- Strongly Agree
- Agree
- Indifferent
- Disagree
- Strongly Disagree



Q7: Place attachment changes due to the level of religious involvement of a space. (i.e.- Church- more sacred = more attachment & Bed room- less sacred = less attachment)

Q8: Does religion play a role in your attachment to spaces other than the church you attend such as certain spaces within your home?

- 3 yes
- 2 no

Q9: What other things factor into your attachment to a place?

- How much time is spent there
- Form, Space, Good Design
- People, Celebration, Memories, Events
- Light, Color, Temperature, Views, Noise

- ☒ Strongly Agree
- ☒ Agree
- ☐ Indifferent
- ☐ Disagree
- ☒ Strongly Disagree

## LEED for New Construction v2.2 Registered Project Checklist

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System is a voluntary, independent, third-party national standard for developing high-performance, sustainable buildings. It provides a framework and standard for evaluating building performance within the industry while setting standards for environmentally sustainable construction. This completed checklist is the first step in obtaining LEED certification.

Yes ? No

<b>11</b>	<b>0</b>	<b>3</b>	<b>Sustainable Sites</b>	<b>14 Points</b>
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<input checked="" type="checkbox"/>			Prereq 1	<b>Construction Activity Pollution Prevention</b>	Required
<input checked="" type="checkbox"/>		<input type="checkbox"/>	Credit 1	<b>Site Selection</b>	1
		<input checked="" type="checkbox"/>	Credit 2	<b>Development Density &amp; Community Connectivity</b>	1
		<input checked="" type="checkbox"/>	Credit 3	<b>Brownfield Redevelopment</b>	1
<input checked="" type="checkbox"/>			Credit 4.1	<b>Alternative Transportation, Public Transportation Access</b>	1
<input checked="" type="checkbox"/>			Credit 4.2	<b>Alternative Transportation, Bicycle Storage &amp; Changing Rooms</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Credit 4.3	<b>Alternative Transportation, Low-Emitting &amp; Fuel-Efficient Vehicles</b>	1
<input checked="" type="checkbox"/>		<input type="checkbox"/>	Credit 4.4	<b>Alternative Transportation, Parking Capacity</b>	1
<input checked="" type="checkbox"/>			Credit 5.1	<b>Site Development, Protect or Restore Habitat</b>	1
<input checked="" type="checkbox"/>			Credit 5.2	<b>Site Development, Maximize Open Space</b>	1
<input checked="" type="checkbox"/>			Credit 6.1	<b>Stormwater Design, Quantity Control</b>	1
<input checked="" type="checkbox"/>		<input type="checkbox"/>	Credit 6.2	<b>Stormwater Design, Quality Control</b>	1
<input checked="" type="checkbox"/>		<input type="checkbox"/>	Credit 7.1	<b>Heat Island Effect, Non-Roof</b>	1
<input checked="" type="checkbox"/>	<input type="checkbox"/>		Credit 7.2	<b>Heat Island Effect, Roof</b>	1
<input checked="" type="checkbox"/>	<input type="checkbox"/>		Credit 8	<b>Light Pollution Reduction</b>	1

Yes ? No

<b>5</b>	<b>0</b>	<b>0</b>	<b>Water Efficiency</b>	<b>5 Points</b>
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<input checked="" type="checkbox"/>	<input type="checkbox"/>		Credit 1.1	<b>Water Efficient Landscaping, Reduce by 50%</b>	1
<input checked="" type="checkbox"/>		<input type="checkbox"/>	Credit 1.2	<b>Water Efficient Landscaping, No Potable Use or No Irrigation</b>	1
<input checked="" type="checkbox"/>	<input type="checkbox"/>		Credit 2	<b>Innovative Wastewater Technologies</b>	1
<input checked="" type="checkbox"/>			Credit 3.1	<b>Water Use Reduction, 20% Reduction</b>	1
<input checked="" type="checkbox"/>			Credit 3.2	<b>Water Use Reduction, 30% Reduction</b>	1

<b>10</b>	<b>0</b>	<b>7</b>	<b>Energy &amp; Atmosphere</b>	<b>17 Points</b>
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<input checked="" type="checkbox"/>			Prereq 1	<b>Fundamental Commissioning of the Building Energy Systems</b>	Required
<input checked="" type="checkbox"/>			Prereq 2	<b>Minimum Energy Performance</b>	Required
<input checked="" type="checkbox"/>			Prereq 3	<b>Fundamental Refrigerant Management</b>	Required

\*Note for EAc1: All LEED for New Construction projects registered after June 26<sup>th</sup> 2007 are required to achieve at least two (2) points under EAc1

<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Credit 1	<b>Optimize Energy Performance</b>	1 to 10
				<input type="checkbox"/> 10.5% New Buildings or 3.5% Existing Building Renovations	1
				<input type="checkbox"/> 14% New Buildings or 7% Existing Building Renovations	2
				<input type="checkbox"/> 17.5% New Buildings or 10.5% Existing Building Renovations	3
				<input type="checkbox"/> 21% New Buildings or 14% Existing Building Renovations	4
				<input type="checkbox"/> 24.5% New Buildings or 17.5% Existing Building Renovations	5
				<input type="checkbox"/> 28% New Buildings or 21% Existing Building Renovations	6
				<input checked="" type="checkbox"/> 31.5% New Buildings or 24.5% Existing Building Renovations	7
				<input type="checkbox"/> 35% New Buildings or 28% Existing Building Renovations	8
				<input type="checkbox"/> 38.5% New Buildings or 31.5% Existing Building Renovations	9
				<input type="checkbox"/> 42% New Buildings or 35% Existing Building Renovations	10
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Credit 2	<b>On-Site Renewable Energy</b>	1 to 3
				<input type="checkbox"/> 2.5% Renewable Energy	1
				<input type="checkbox"/> 7.5% Renewable Energy	2
				<input type="checkbox"/> 12.5% Renewable Energy	3



1			Credit 3	Enhanced Commissioning	1
1	0		Credit 4	Enhanced Refrigerant Management	1
1		0	Credit 5	Measurement & Verification	1
	0	1	Credit 6	Green Power	1

continued...

Yes	?	No			
10	0	3	<b>Materials &amp; Resources</b>		13 Points

Y			Prereq 1	<b>Storage &amp; Collection of Recyclables</b>	Required
	0	1	Credit 1.1	<b>Building Reuse</b> , Maintain 75% of Existing Walls, Floors & Roof	1
0		1	Credit 1.2	<b>Building Reuse</b> , Maintain 100% of Existing Walls, Floors & Roof	1
0		1	Credit 1.3	<b>Building Reuse</b> , Maintain 50% of Interior Non-Structural Elements	1
1		0	Credit 2.1	<b>Construction Waste Management</b> , Divert 50% from Disposal	1
1		0	Credit 2.2	<b>Construction Waste Management</b> , Divert 75% from Disposal	1
1			Credit 3.1	<b>Materials Reuse</b> , 5%	1
1			Credit 3.2	<b>Materials Reuse</b> , 10%	1
1		0	Credit 4.1	<b>Recycled Content</b> , 10% (post-consumer + ½ pre-consumer)	1
1	0		Credit 4.2	<b>Recycled Content</b> , 20% (post-consumer + ½ pre-consumer)	1
1	0		Credit 5.1	<b>Regional Materials</b> , 10% Extracted, Processed & Manufactured Regional	1
1			Credit 5.2	<b>Regional Materials</b> , 20% Extracted, Processed & Manufactured Regional	1
1		0	Credit 6	<b>Rapidly Renewable Materials</b>	1
1			Credit 7	<b>Certified Wood</b>	1

Yes	?	No			
15	0	0	<b>Indoor Environmental Quality</b>		15 Points

Y			Prereq 1	<b>Minimum IAQ Performance</b>	Required
Y			Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	Required
1			Credit 1	<b>Outdoor Air Delivery Monitoring</b>	1
1		0	Credit 2	<b>Increased Ventilation</b>	1
1	0		Credit 3.1	<b>Construction IAQ Management Plan</b> , During Construction	1
1	0		Credit 3.2	<b>Construction IAQ Management Plan</b> , Before Occupancy	1
1			Credit 4.1	<b>Low-Emitting Materials</b> , Adhesives & Sealants	1
1		0	Credit 4.2	<b>Low-Emitting Materials</b> , Paints & Coatings	1
1	0		Credit 4.3	<b>Low-Emitting Materials</b> , Carpet Systems	1
1	0		Credit 4.4	<b>Low-Emitting Materials</b> , Composite Wood & Agrifiber Products	1
1			Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	1
1		0	Credit 6.1	<b>Controllability of Systems</b> , Lighting	1
1	0		Credit 6.2	<b>Controllability of Systems</b> , Thermal Comfort	1
1	0		Credit 7.1	<b>Thermal Comfort</b> , Design	1
1			Credit 7.2	<b>Thermal Comfort</b> , Verification	1
1		0	Credit 8.1	<b>Daylight &amp; Views</b> , Daylight 75% of Spaces	1
1	0		Credit 8.2	<b>Daylight &amp; Views</b> , Views for 90% of Spaces	1

Yes	?	No			
5	0	0	<b>Innovation &amp; Design Process</b>		5 Points

1			Credit 1.1	<b>Innovation in Design</b> : Provide Specific Title	1
1		0	Credit 1.2	<b>Innovation in Design</b> : Provide Specific Title	1
1	0		Credit 1.3	<b>Innovation in Design</b> : Provide Specific Title	1
1	0		Credit 1.4	<b>Innovation in Design</b> : Provide Specific Title	1
1			Credit 2	<b>LEED® Accredited Professional</b>	1

Yes	?	No			
56	0	13	<b>Project Totals (pre-certification estimates)</b>		69 Points

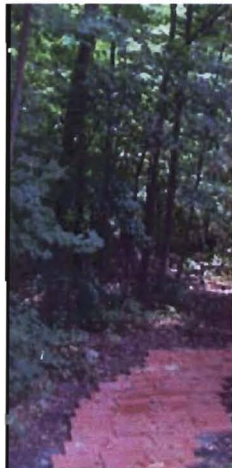
**Certified:** 26-32 points, **Silver:** 33-38 points, **Gold:** 39-51 points, **Platinum:** 52-69 points



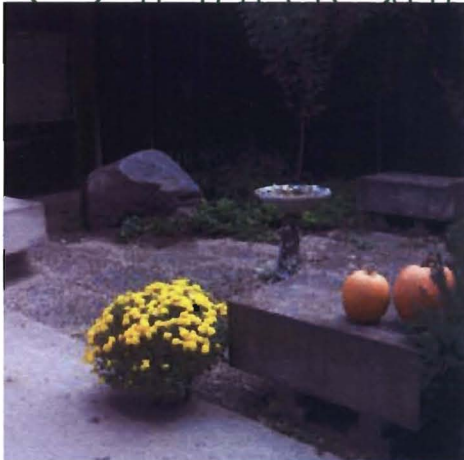
entrance



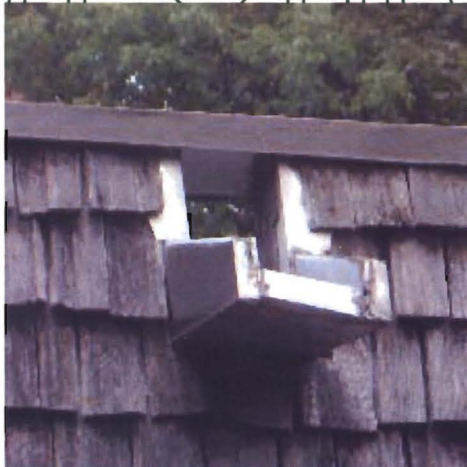
circle garden



trash collection



outdoor seating



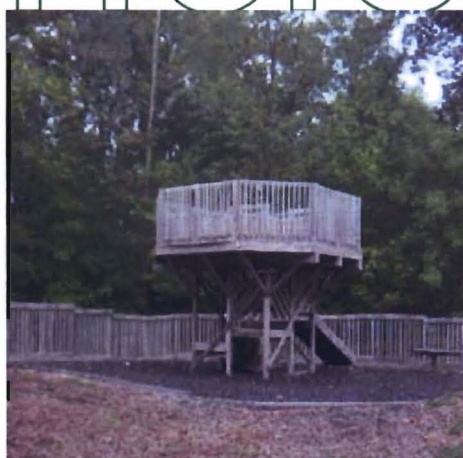
gutter



lounge



harshman stained glass



playground



side parking





outdoor seating

# Visit Church



name tags

# diana



main parking lot



3760 kwh electric  
Brick structure, wood  
shingles  
Large open sanctuary,  
moveable chairs  
Window walls, all oper-  
able  
Densely wooded site  
Fenced in playground  
130 average Sunday at-  
tendance

Religious Design:  
Connection to  
nature





candles



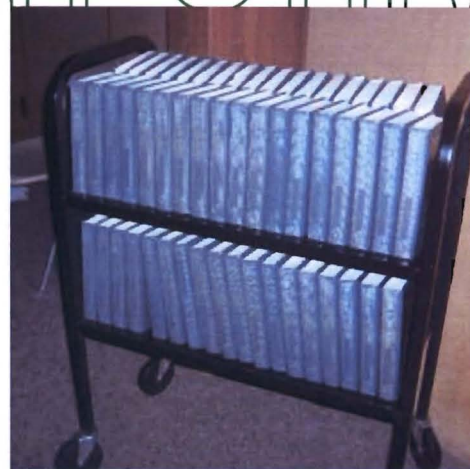
memorial wall



heritage wall



recycle bins



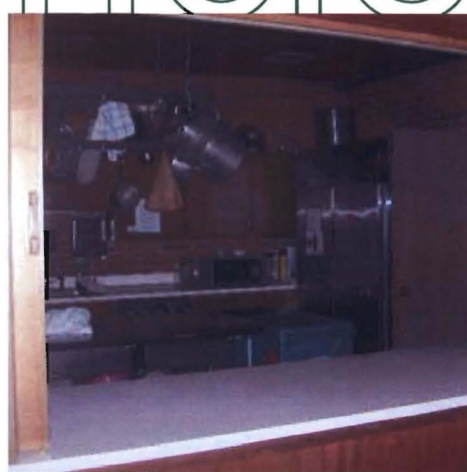
prayer books



bell



sunday school room

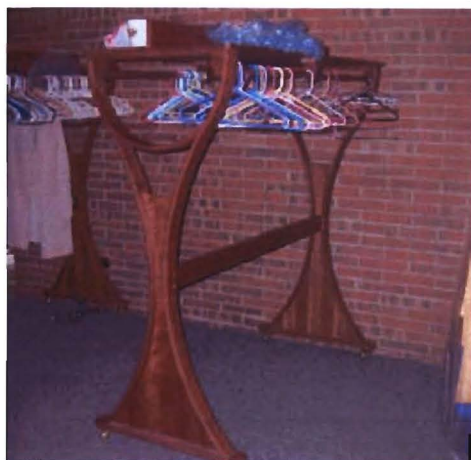


kitchen

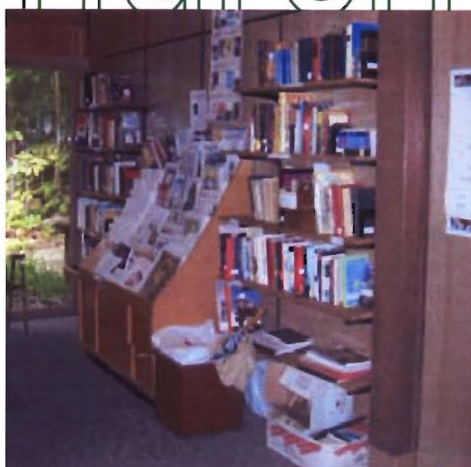


game room





coat racks



library



rainbow candles

# Unit Church

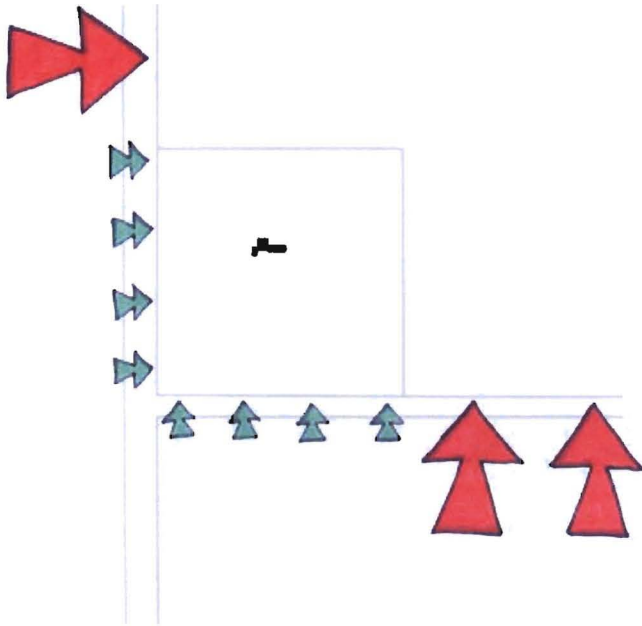
# iana



## UU Principles for Our Children

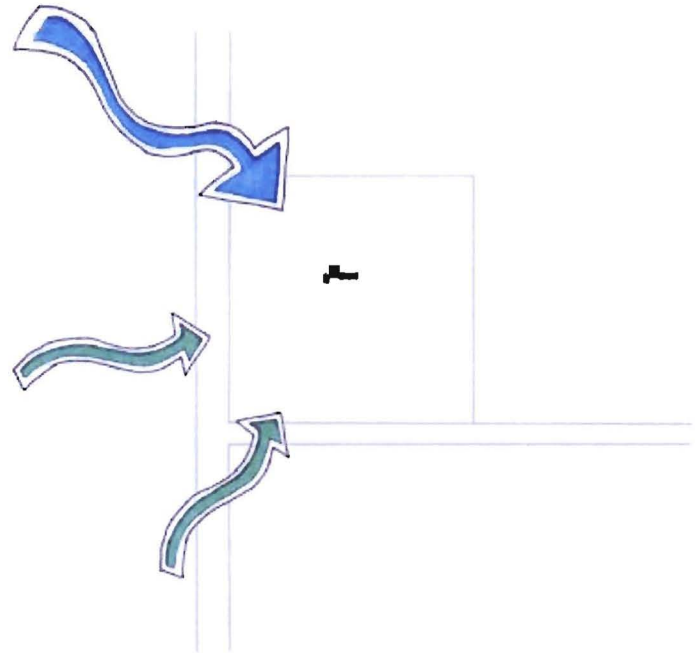
1. Respect all people. They have dignity and worth.
2. Offer fair and kind treatment to everyone.
3. Young and old together in community.
4. Grow and find your own truths.
5. Believe in your ideals and voice your vote.
6. Insist on Justice, Freedom and Peace.
7. Value the earth and the web of life.

## Development



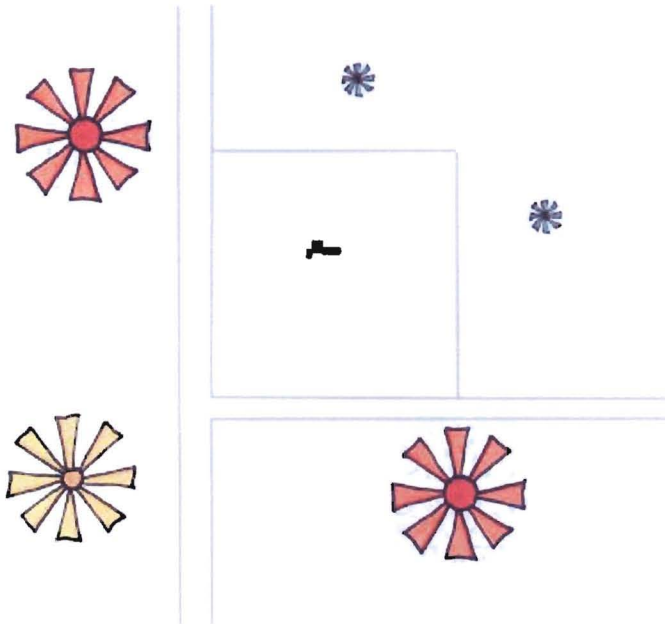
With existing housing on two sides, the remaining agricultural land is under severe pressure for development.

## Wind



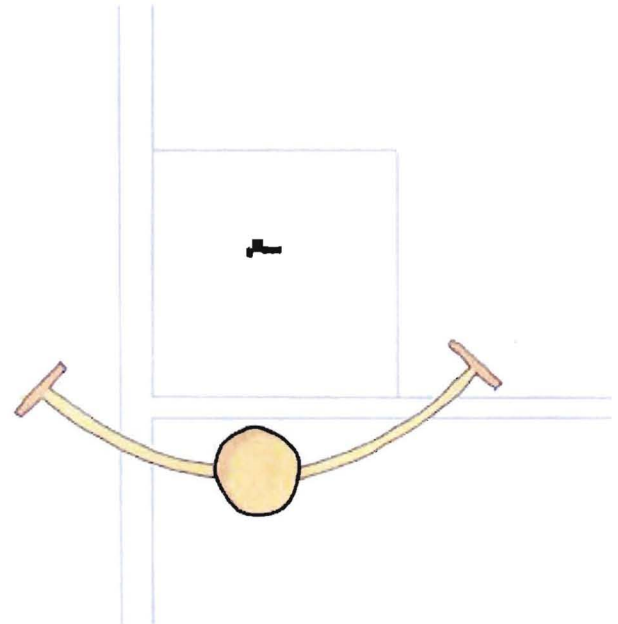
With the prevailing winter winds coming from the northwest, the building was placed far enough in from the tree line to give adequate cover.

## Noise



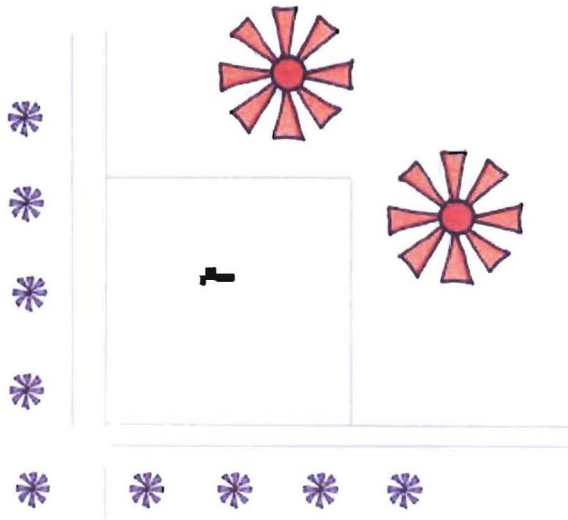
While most of the noise currently comes from the west and south, existing neighborhoods, the building is located out a auditory range.

## Daylighting



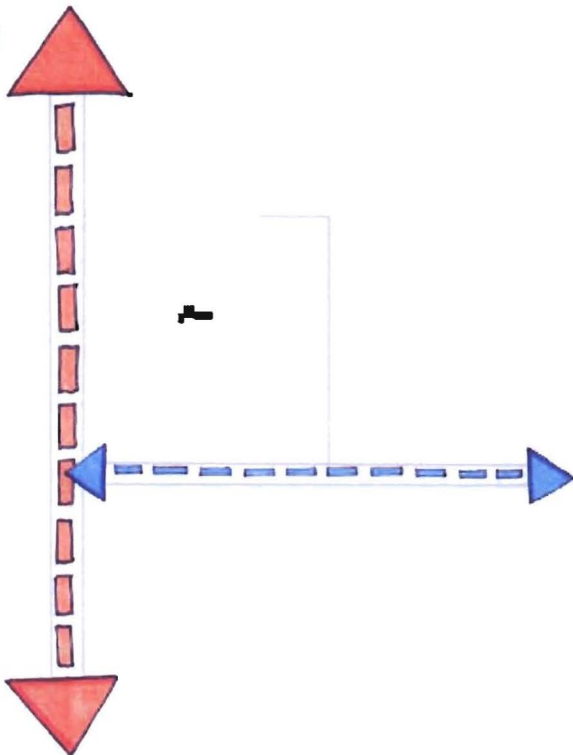
With optimal solar gain and natural daylighting in mind, the building has an east-west orientation.

## Views



The views on either side, while better to the north and east, are not visible from the church.

## Traffic



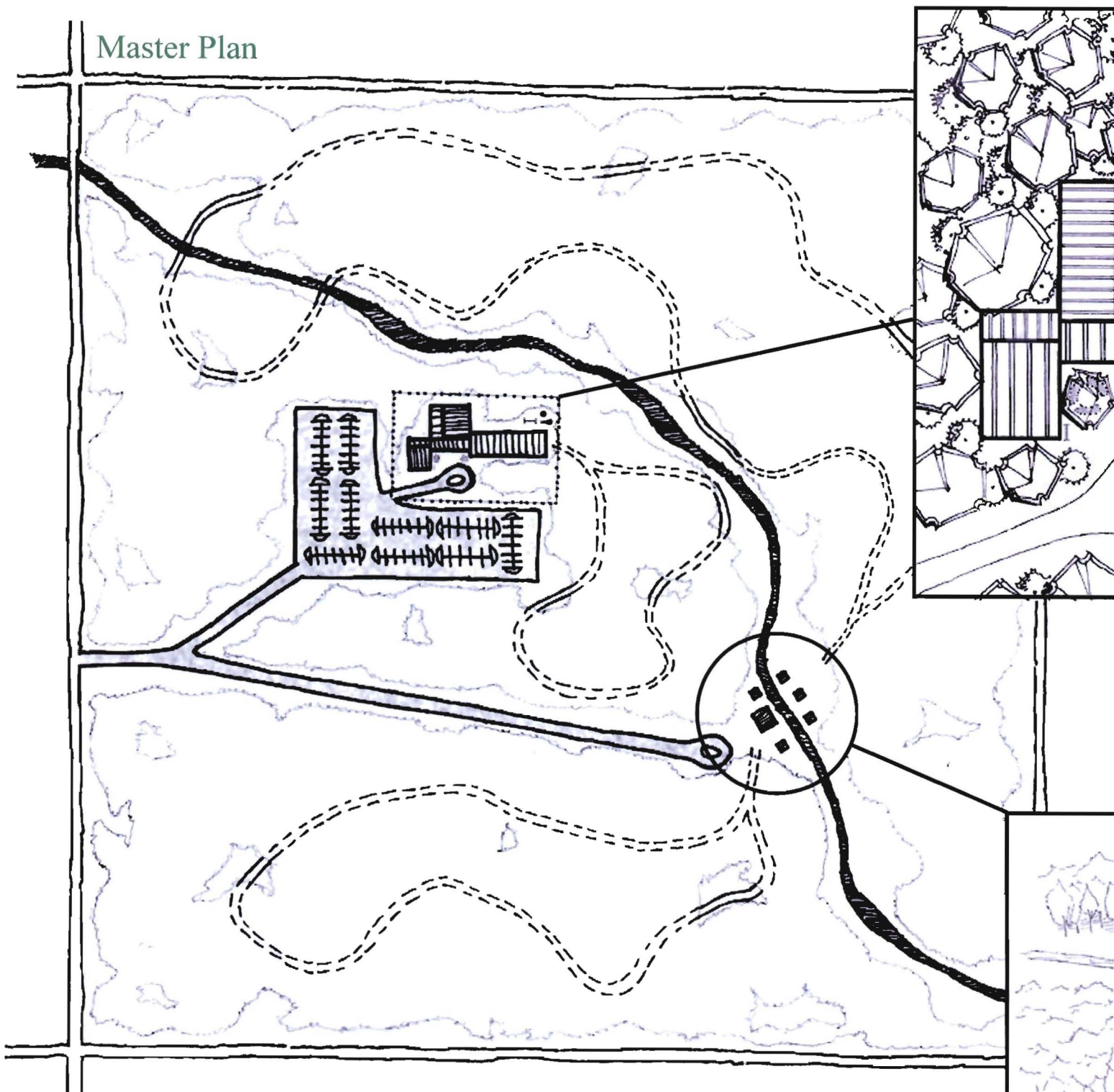
The main entrance to the church is located off the busier of the two country roads for easy access



Site Analysis

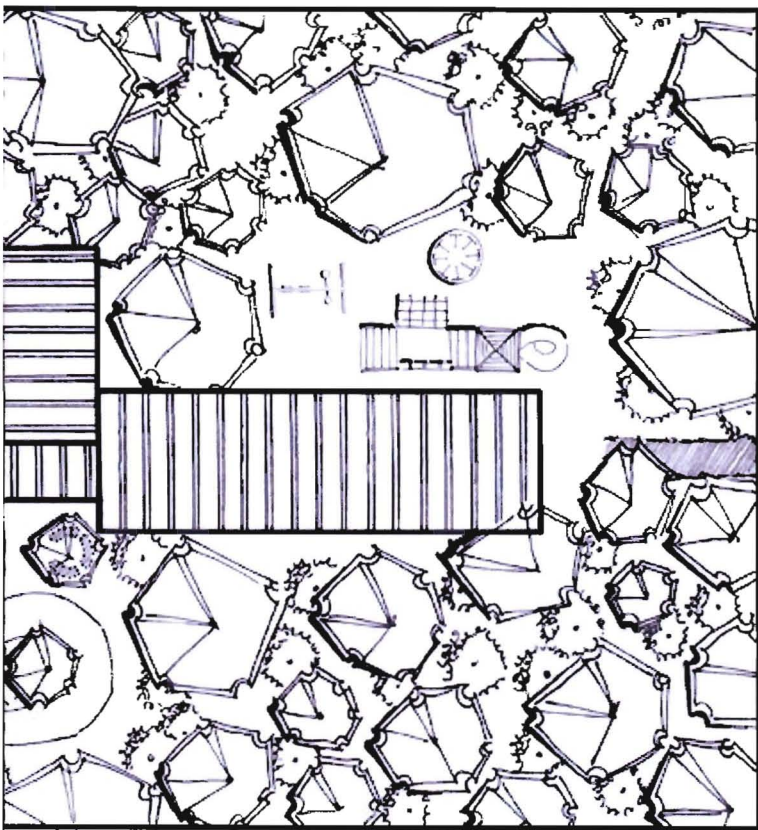


## Master Plan



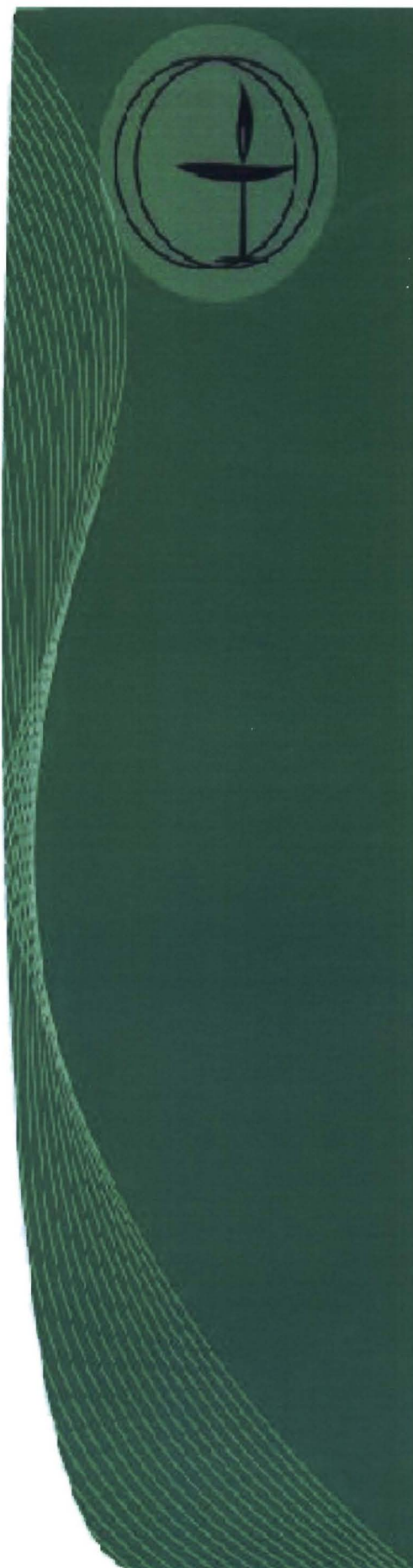
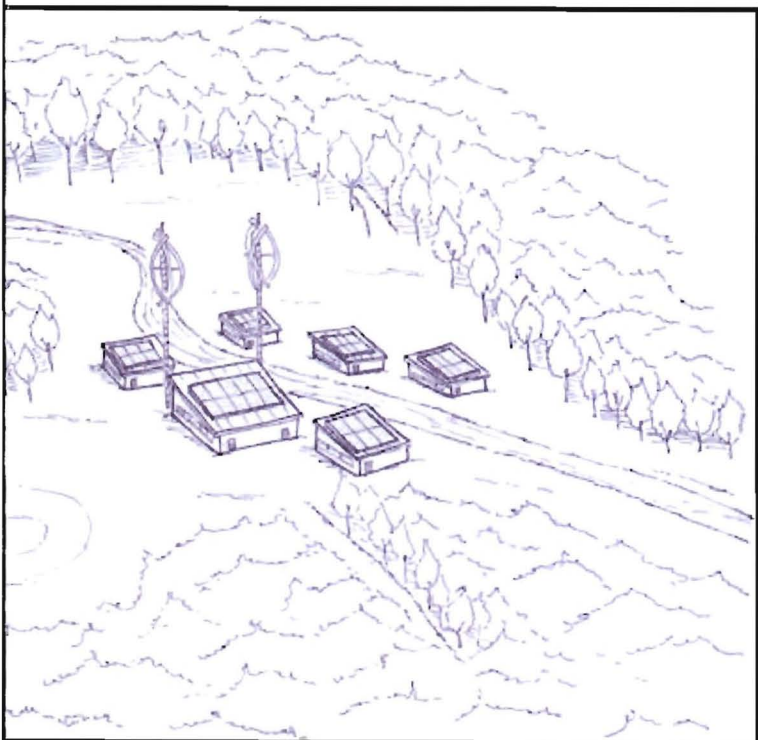
A proposed rec center and five small cabins, powered by solar and wind energy, would create an escape within the site and serve for educational purposes..



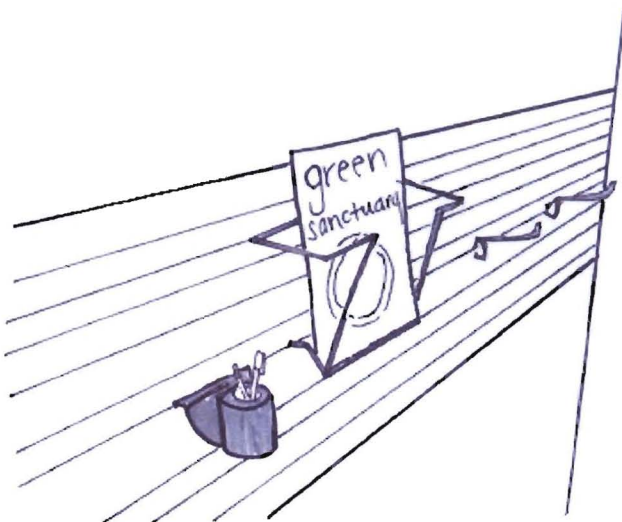
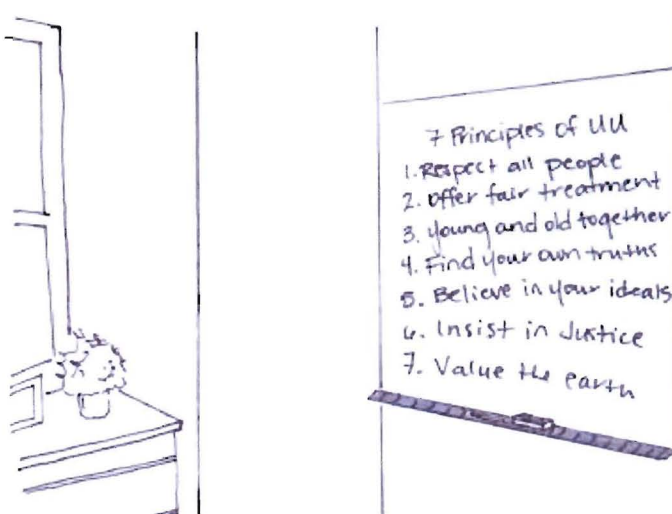
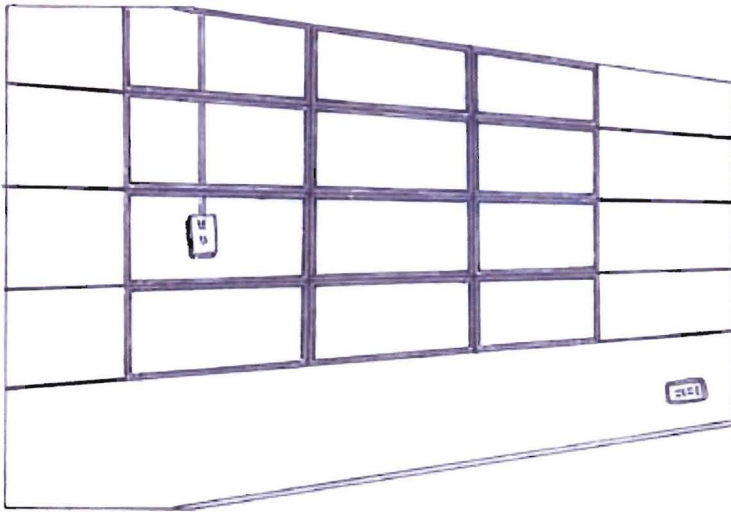


Site Plan

## Recreational and Retreat Facilities



## DIRTT



‘Doing It Right This Time’ is a system of movable walls. They are pre-engineered and pre-manufactured to be used for the long term, but also provide a flexible asset. They virtually eliminate construction waste and any future renovation waste – no demolition, dumping, procuring and re-building. The system is hung from the ceiling grid and placed on top of the floor covering; this allows movement without disruption of other materials. The stick-built recycled aluminum system is modular and allows electrical and plumbing to be run within the wall system. The wall panels can be certified wood or regionally manufactured glass.

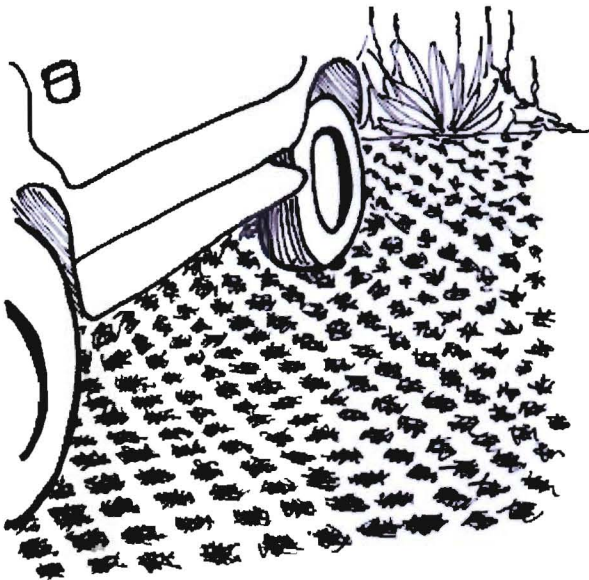
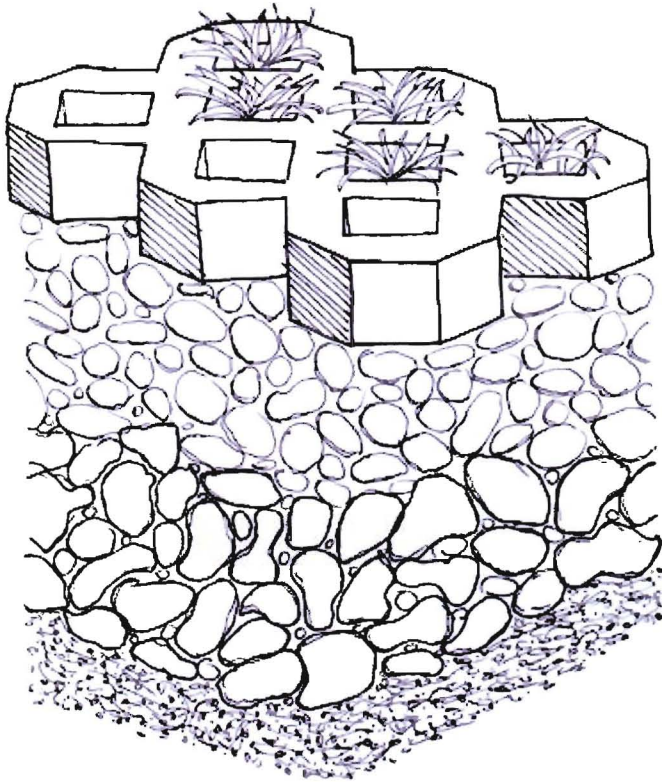
### Green Ideas:

- Natural Daylighting
- Recycled, Rapidly Renewable, and Regional Materials
- East/West Orientation
- Rainwater Collection from roof

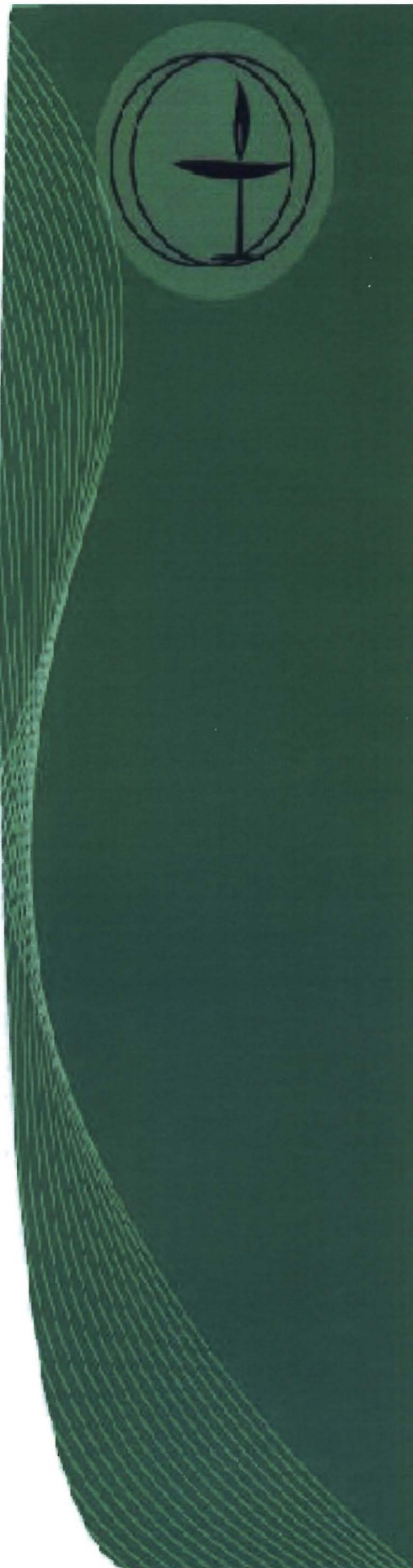
Porous pavers temporarily normally runoff into river water quality treatment. To promote tree growth, and are spared erosion and high pollutants normally associated are detrimental to fish, and increased velocity is harmful to surface freezing and actual



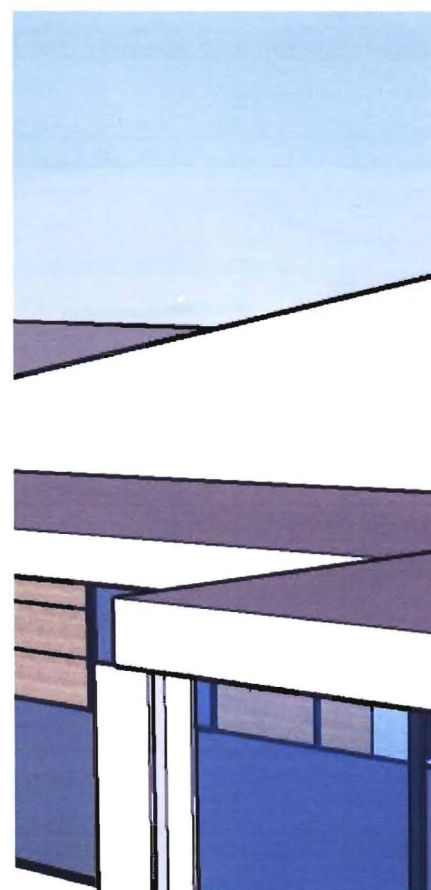
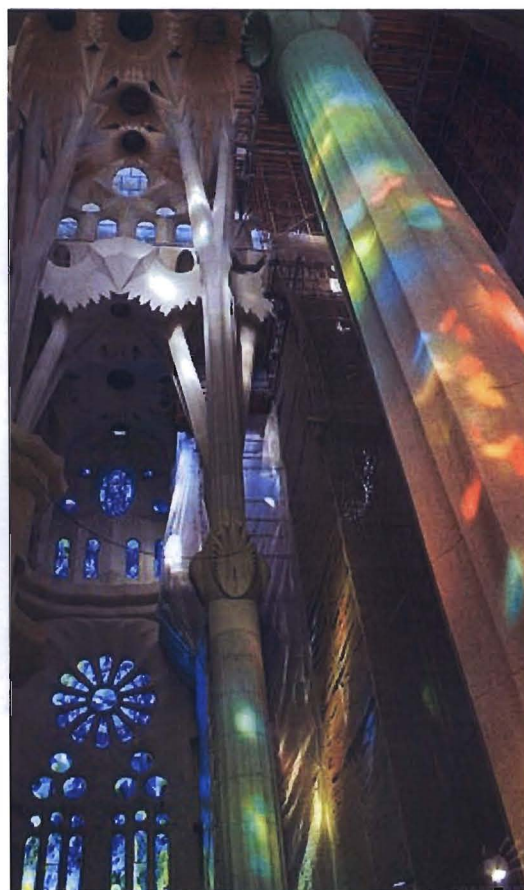
## Porous Pavers



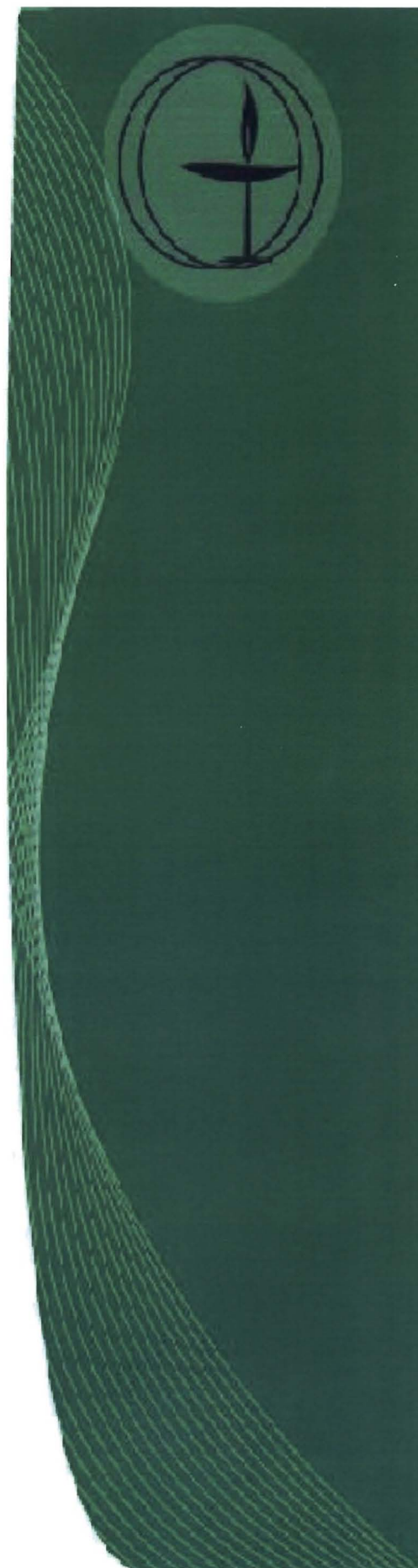
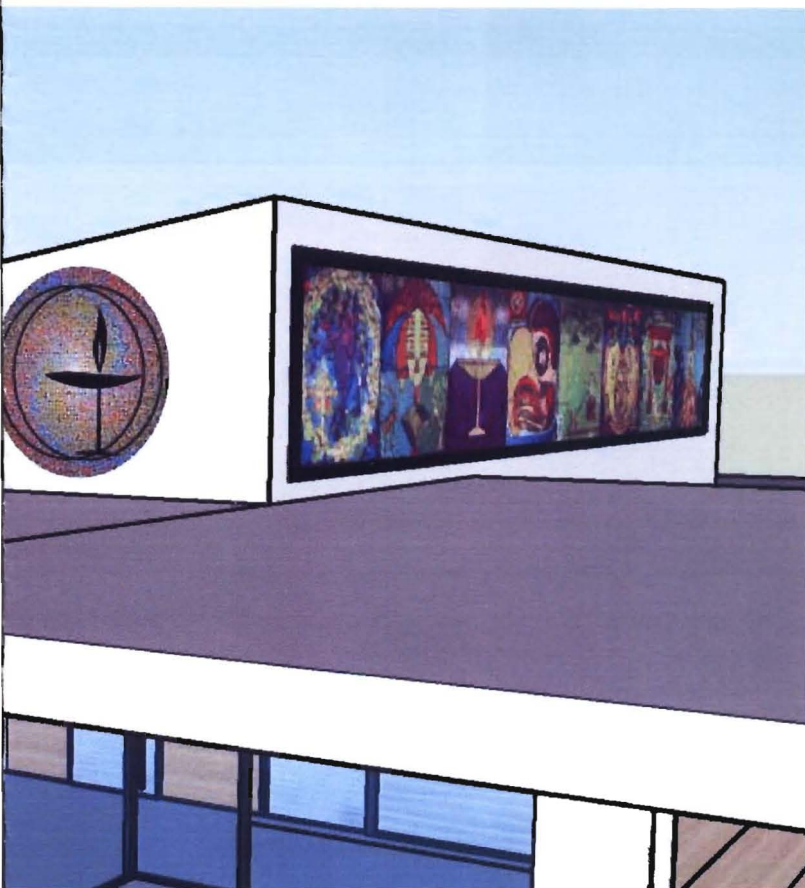
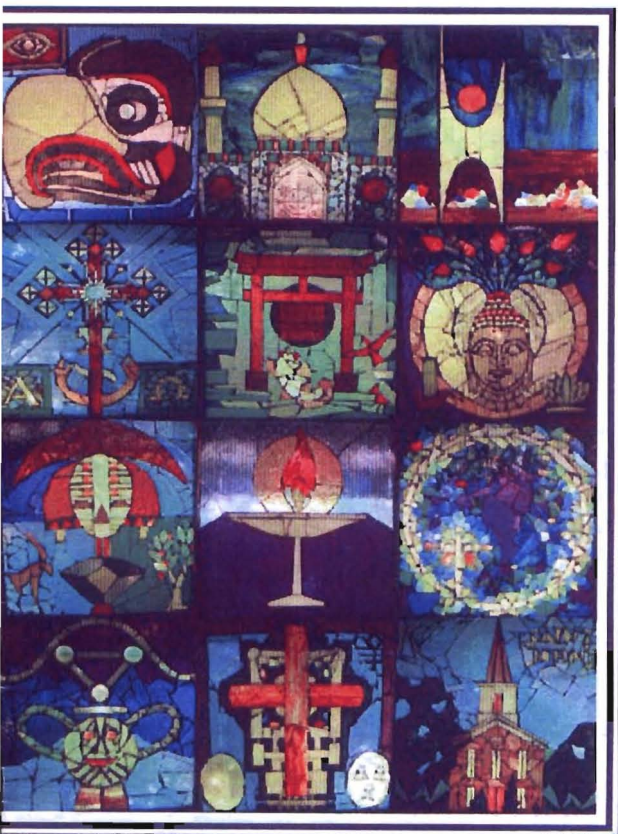
reduces rainwater runoff to allow rainwater that would otherwise flow into storm drains and streams, to infiltrate directly into the soil and receive oxygen. This helps to cool the air (heat island effect), reduce soil erosion, capture and retain airborne dust. Stream and creek beds heated by stormwater temperatures caused by increases in velocity and volume are less hospitable to aquatic life. Higher water temperatures can also lead to the death of aquatic vegetation, and other animals. Erosion due to increased runoff is also a problem. Porous paving is also less susceptible to freezing and thawing than hard surfaces.

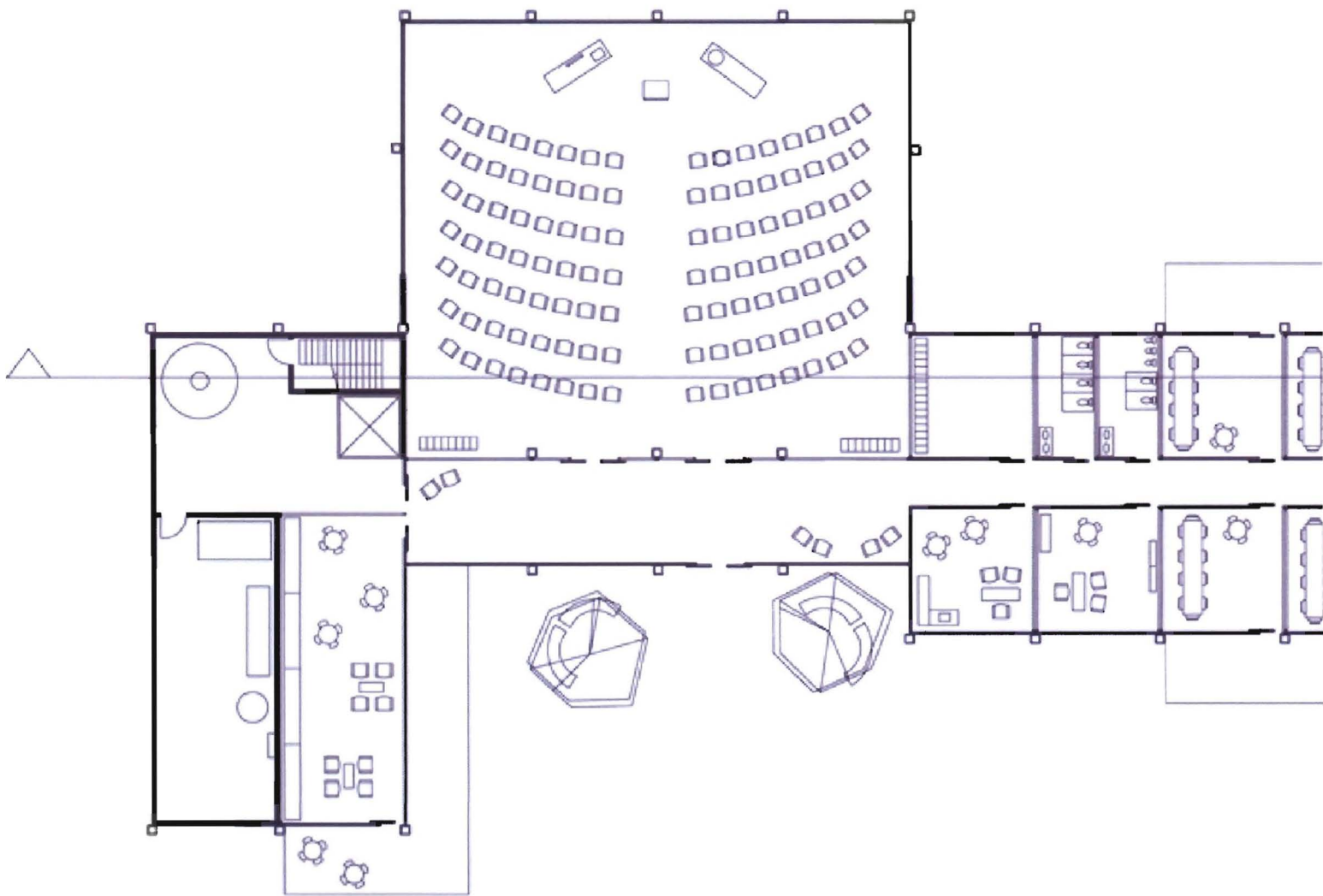


Unique and important to the church are 16 stained glass panels designed by Art Harshman in 1970. The panels depict religions from around the world in various cultures. The symbolism in these works of art reflect a message of religious unity in diversity. The location of these panels on the elevated east and west sides of the sanctuary allow light to spill in and cast an array of colorful light upon the congregation in both morning and evening services. Similar to the Sagrada Familia in Barcelona (left).

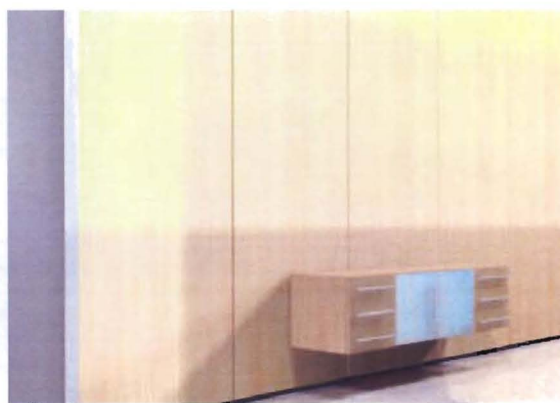








wall assembly

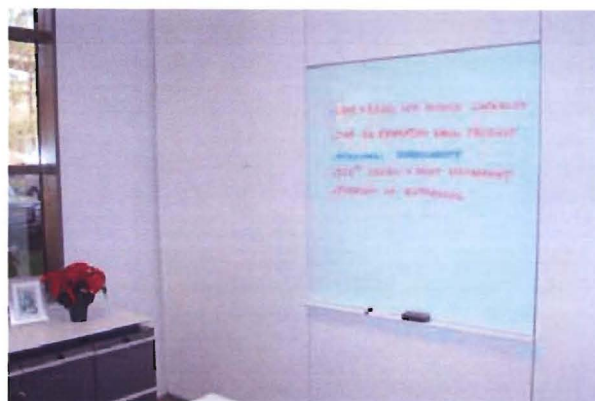
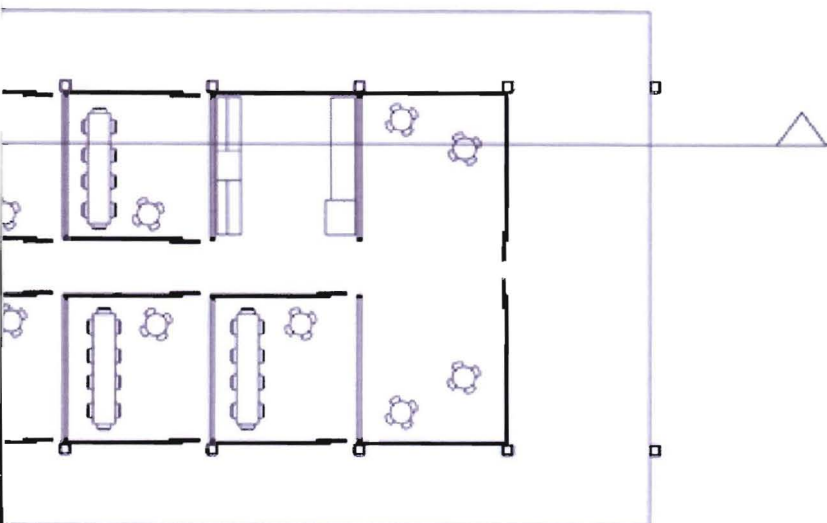


cabinetry

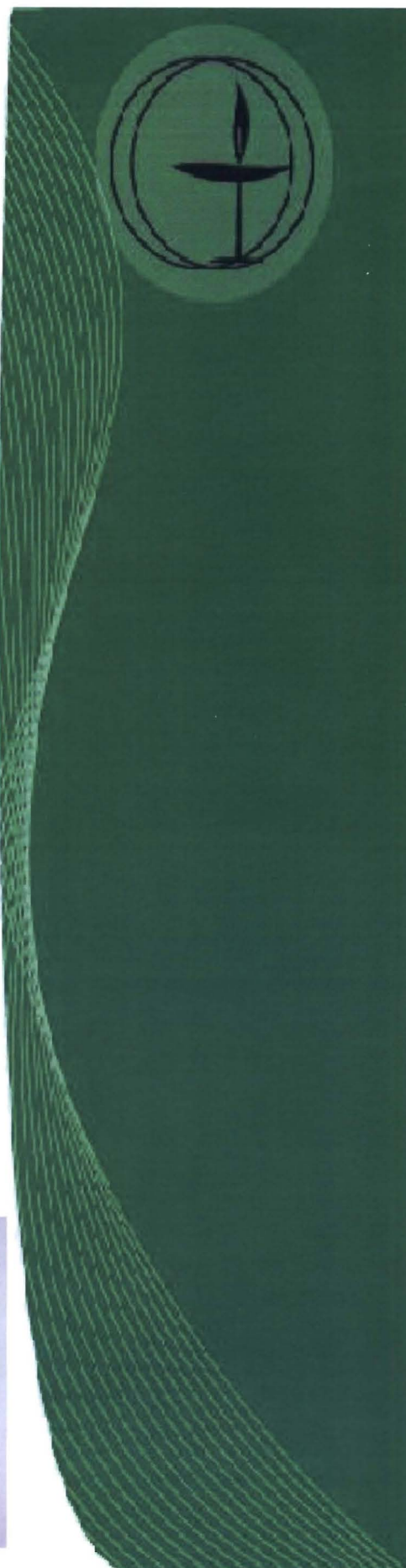


storage rack

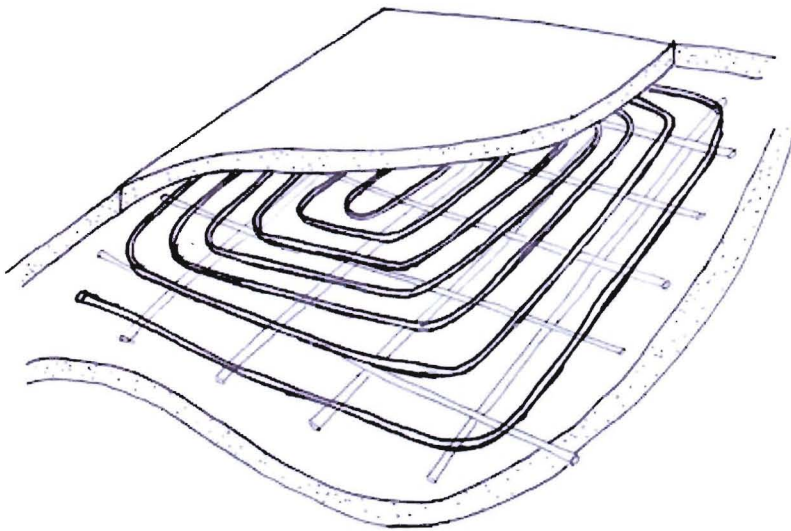
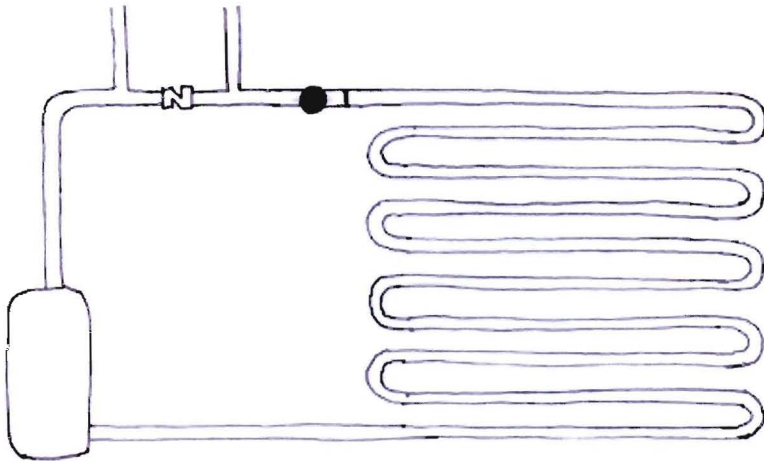




dry erase board

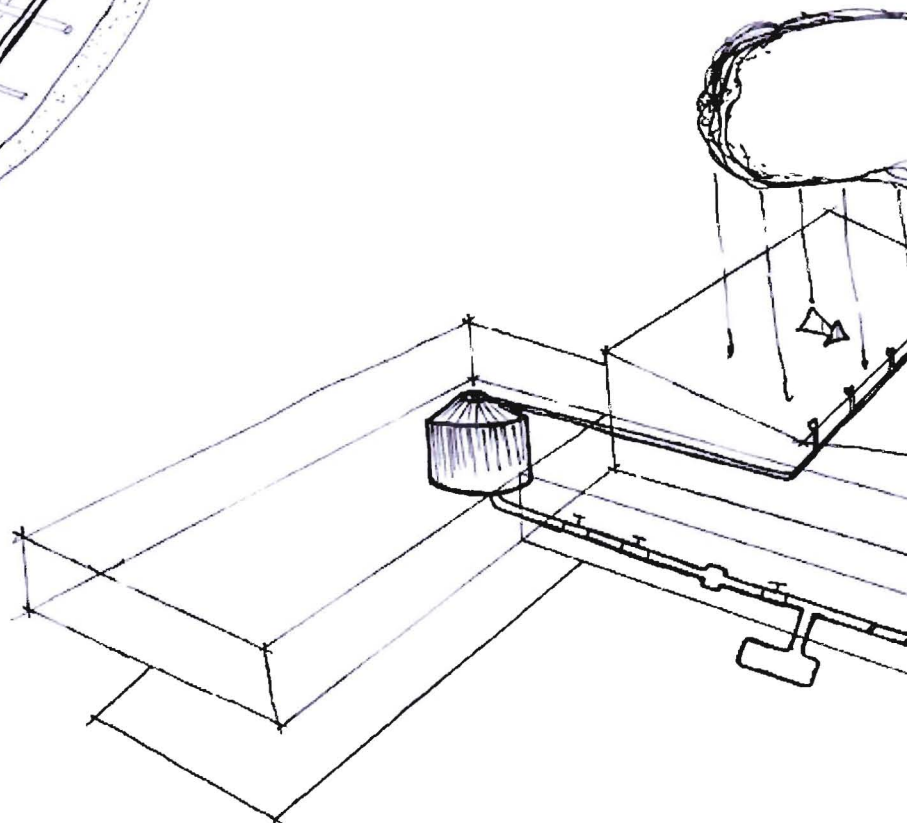


## Radiant Heating



Radiant floor heating saves energy through lower thermostat settings, lower boiler temperatures, and reduced infiltration. This also translates into increased boiler life and improved indoor air quality. The spatial benefit to the system is quiet operation and the ability for a flexible room layout.

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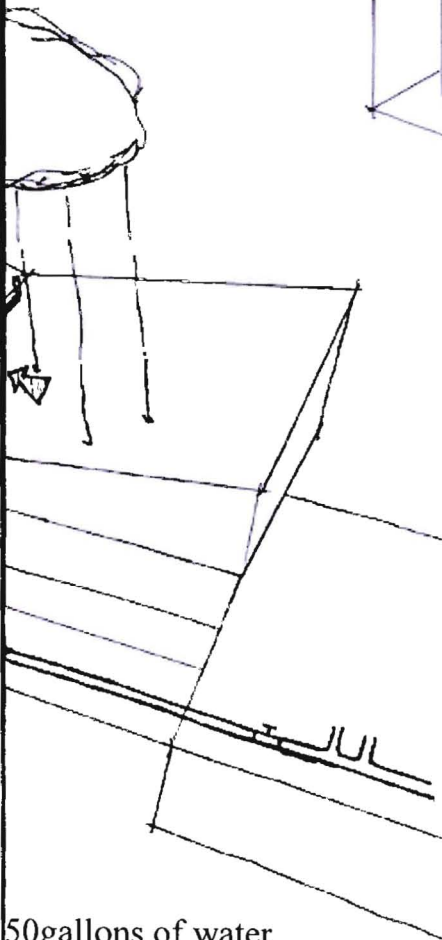
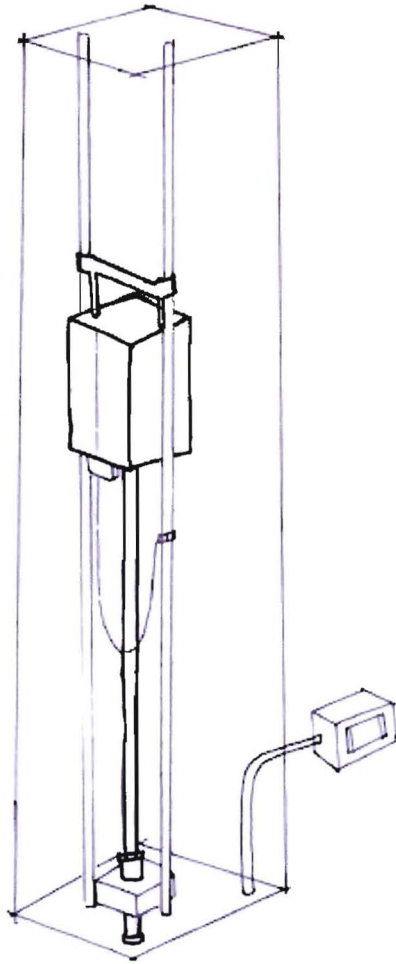
## Rainwater Collection

1 inch of rain on this collective roof (5700 square feet) yields for grey water use (sprinkler, toilets, hoses, etc.)

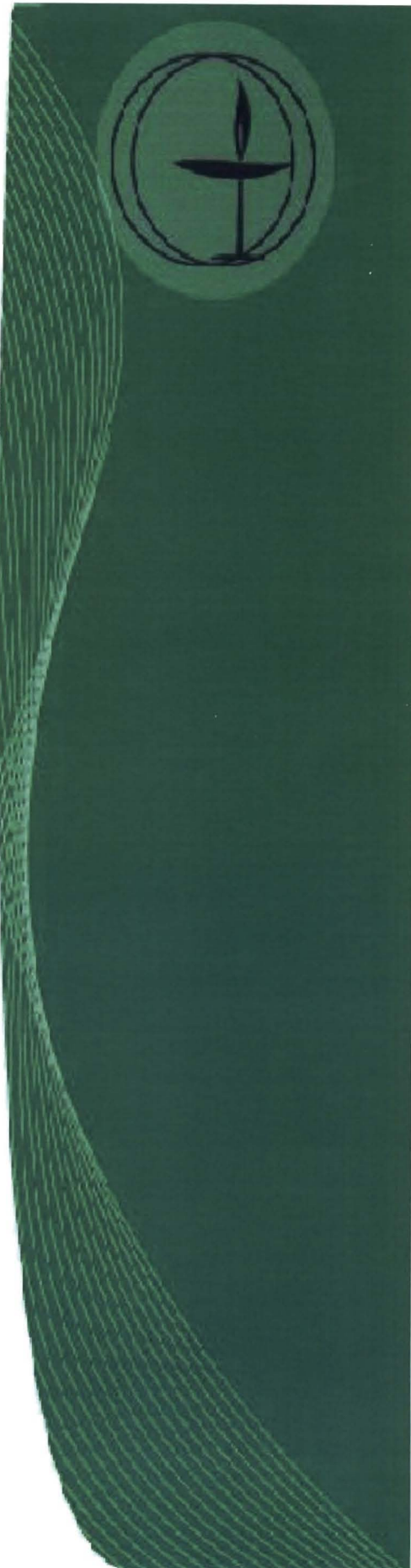


## Circulation

om-Less elevators,  
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he need for hydraulic  
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50gallons of water

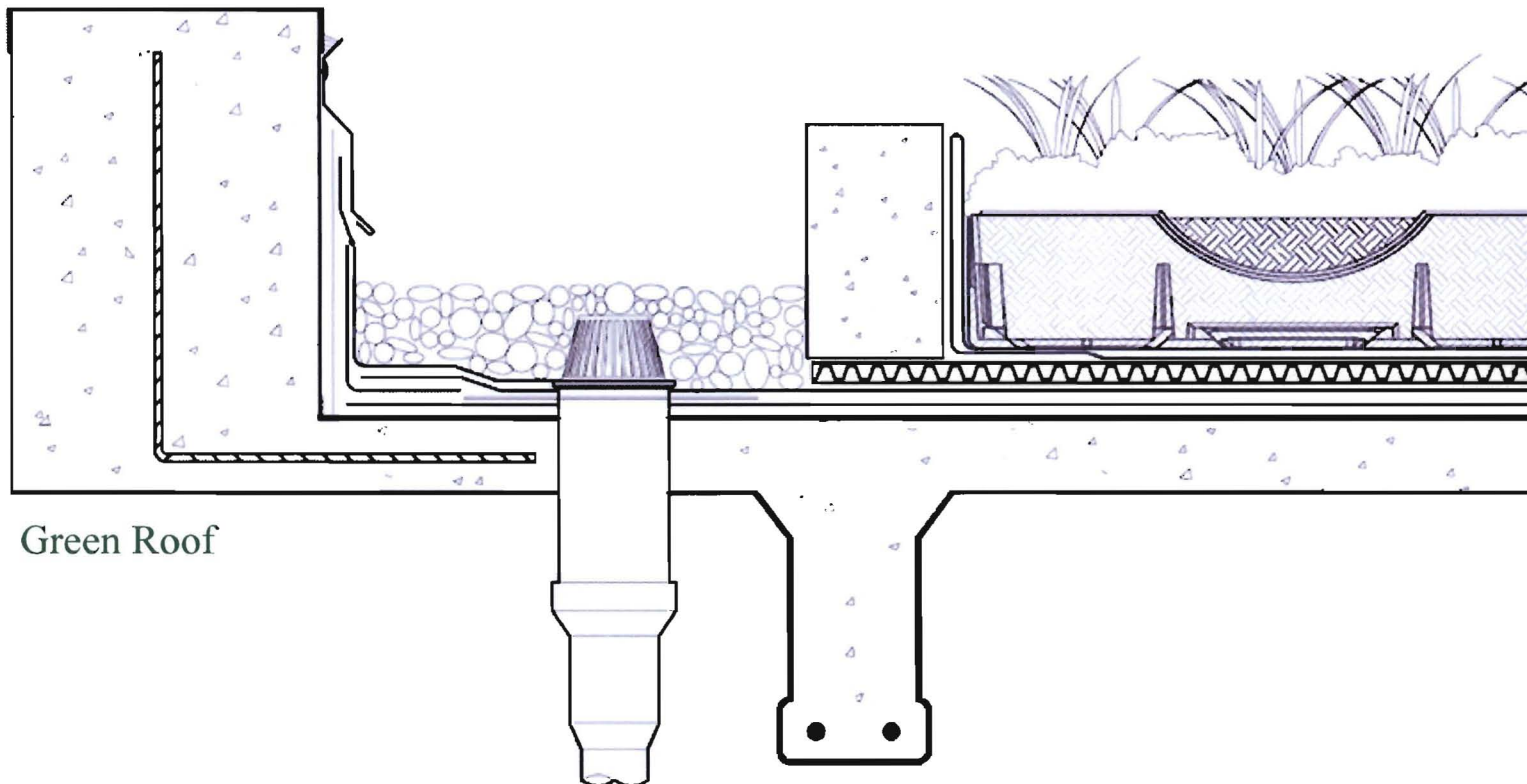


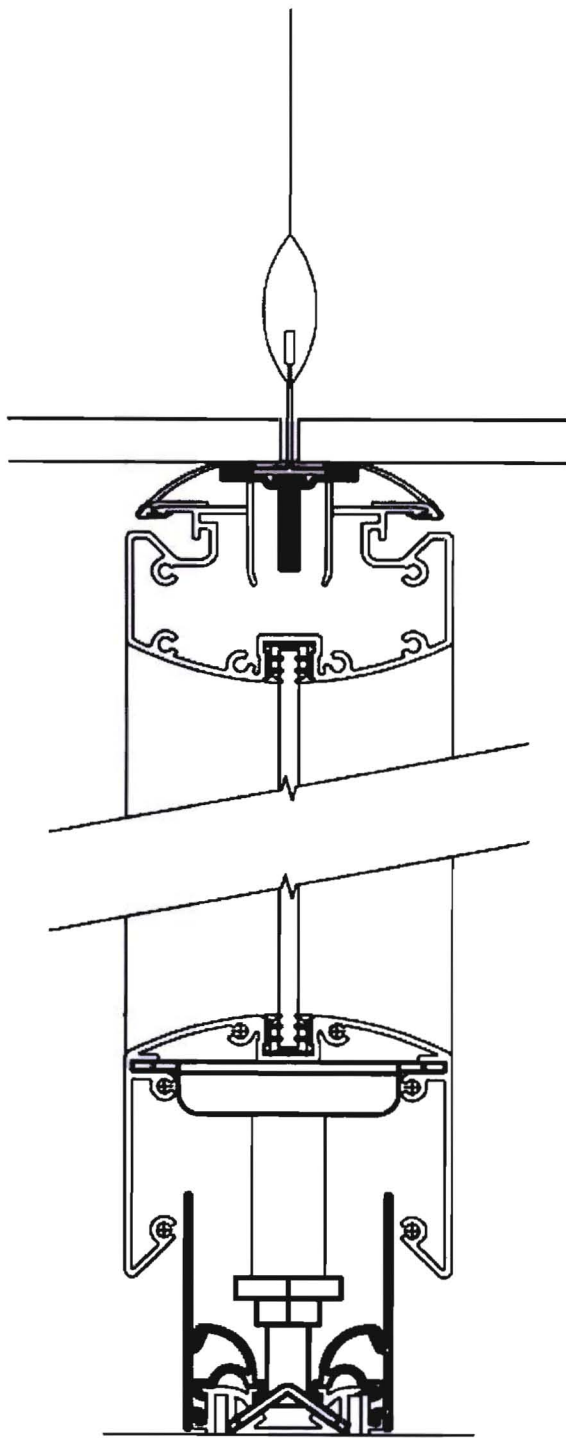
## Design Intent

This design is for a new Unitarian Universalist Church to be located in Delaware County, Indiana. The three most important concepts to design are more space and flexibility, a strong relationship with nature, and a sustainable building and site.

The church is a member of the Green Sanctuary Program, consequently, energy efficiency, the use of recycled and rapidly renewable materials, and specific design elements contribute the church's connection with nature and promote the concepts fundamental to sustainable design. One sustainable principle key to a growing congregation is flexibility; the clear structural span across the building and integration of the DIRT system allow for change without waste.

Green roofs have significant energy savings, particularly during the summer cooling season in which single story buildings can experience a reduction of greater than 25% energy use. Plants transform heat and soil moisture into humidity, to create natural evaporative cooling; therefore, they reduce the heat island effect.





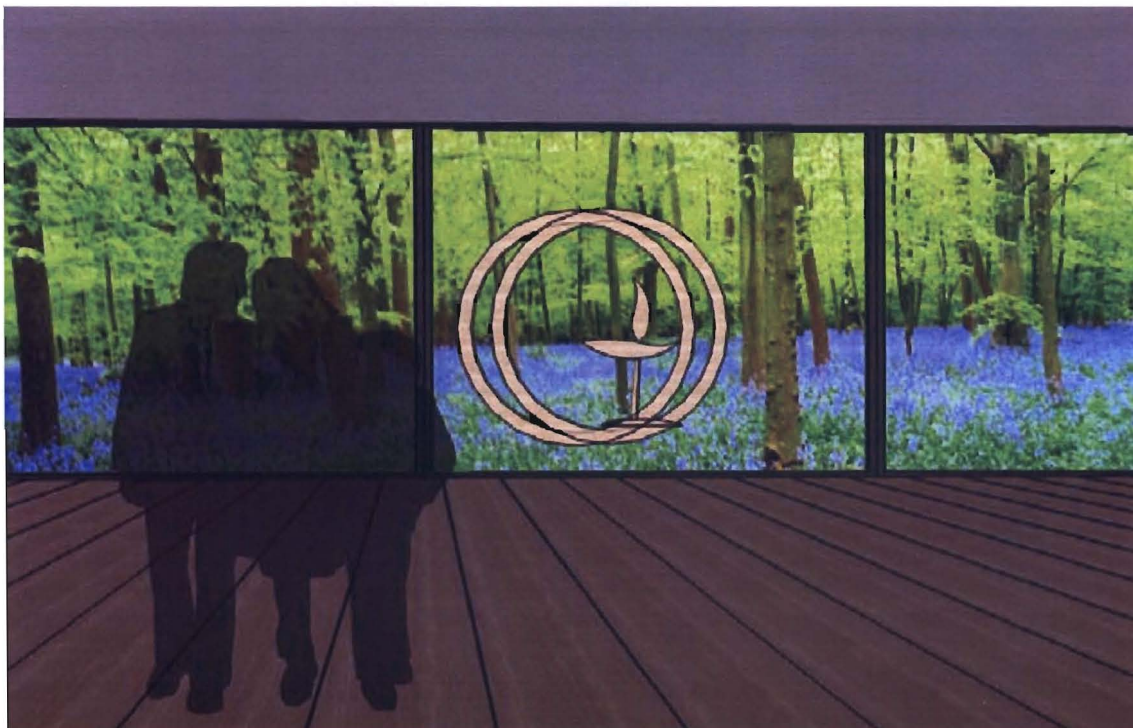
Interior Wall Connection



Construction Details



The church's desire to have a connection with the natural environment led to the spatial answer of our d religion? While the church does not glorify idols are symbols, nature is their refuge. As Mies Van der E wallpaper, always changing, always beautiful. To allow the maximum connection with nature, the major views. The secondary spaces also all have glass doors that open directly out onto patios; this allows for ventilation to natural cool the building. The four images at the bottom depict the view out from the sanc





Design problem: What about the design represents  
as stated with the Farnsworth House, Nature is the  
majority of walls are full size windows with unobstructed  
view of south-western breeze in the summer and cross  
windy during each of the seasons.

